

? set alias allpatents 347,348,349,350

ALLPATENTS is set ON as an alias for 347,348,349,350

? set alias business 2,6,8,34,35,56,60,65,95,99,144,256,266,434,474,475,583

BUSINESS is set ON as an alias for  
2,6,8,34,35,56,60,65,95,99,144,256,266,434,474,475,583

? set alias npl

9,15,16,20,47,98,148,160,275,369,370,484,553,610,613,621,624,634,635,636,647,674,69  
6,810,813

NPL is set ON as an alias for  
9,15,16,20,47,98,148,160,275,369,370,484,553,610,613,621,624,634,635,636  
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47,674,696,810,813

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File 123:CLAIMS(R)/Current Legal Status 1980-2008/Feb 27

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Set	Items	Description
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		? s (PD < 20031217) and (content or document) (15N) (distribut? or redistribut? or deliver? or transfer? or transmit?) (40N) (network or Internet) and (bill? or pay or payment or charg?)

Completed processing all files

40555198	PD<20031217
2444154	CONTENT
1130986	DOCUMENT
3645701	DISTRIBUT?
64607	REDISTRIBUT?
2435584	DELIVER?
5012663	TRANSFER?
4041993	TRANSMIT?
1968427	NETWORK
690212	INTERNET
94612	(CONTENT OR DOCUMENT) (15N) (((DISTRIBUT? OR REDISTRIBUT?)
	OR DELIVER?) OR TRANSFER?) OR TRANSMIT?) (40N) (NETWORK
OR	INTERNET)
417013	BILL?
167682	PAY
160974	PAYMENT
2813115	CHARG?
S1 16919	(PD < 20031217) AND (CONTENT OR DOCUMENT) (15N) (DISTRIBUT? OR REDISTRIBUT? OR DELIVER? OR TRANSFER?
OR	TRANSMIT?) (40N) (NETWORK OR INTERNET) AND (BILL? OR
PAY	PAYMENT OR CHARG?)

? s s1 and (terminal or client or user or customer or subscriber or distributor or retailer or retailor) (10W) (replicat? or duplciat? or reproduc? or copy or deliver? or distribut? or redistribut? or transfer?) (10W) (other or another or different or second or plurality) (3W) (terminal or client or user or customer or subscriber)

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16919	S1
2754679	TERMINAL
358216	CLIENT
2861747	USER
376411	CUSTOMER
247795	SUBSCRIBER
210295	DISTRIBUTOR
25840	RETAILER
10	RETAILOR
353682	REPLICAT?

	7	DUPLCIAT?
1313629		REPRODUC?
533866		COPY
2435584		DELIVER?
3645701		DISTRIBUT?
64607		REDISTRIBUT?
5012663		TRANSFER?
14408840		OTHER
8615320		ANOTHER
7821116		DIFFERENT
11172038		SECOND
6883183		PLURALITY
2754679		TERMINAL
358216		CLIENT
2861747		USER
376411		CUSTOMER
247795		SUBSCRIBER
66631		(((((TERMINAL OR CLIENT) OR USER) OR CUSTOMER) OR SUBSCRIBER) OR DISTRIBUTOR) OR RETAILER) OR RETAILOR).....
S2	3521	S1 AND (TERMINAL OR CLIENT OR USER OR CUSTOMER OR SUBSCRIBER OR DISTRIBUTOR OR RETAILER OR RETAILOR) (10W)
		(REPLICAT? OR DUPLCIAT? OR REPRODUC? OR COPY OR DELIVER? OR DISTRIBUT? OR REDISTRIBUT? OR TRANSFER?) (10W)
		(OTHER OR ANOTHER OR DIFFERENT OR SECOND OR PLURALITY) (3W) (TERMINAL OR CLIENT OR USER OR CUSTOMER OR SUBSCRIBER)

? s2 and server (10N) (stor? or memory or maintain?) (15N) (accounting or billing or payment or charg?) (10N) (balance or information or data)

Completed processing all files		
22921499	2	
723094		SERVER
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2976526		MEMORY
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123225		ACCOUNTING
86077		BILLING
160974		PAYMENT
2813115		CHARG?
994435		BALANCE
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5651444		DATA
16272		SERVER(10N)((STOR? OR MEMORY) OR MAINTAIN?) (15N)((ACCOUNTING OR BILLING) OR PAYMENT) OR CHARG?) (10N)((BALANCE OR INFORMATION) OR DATA)
S3	14406	2 AND SERVER (10N) (STOR? OR MEMORY OR MAINTAIN?) (15N) (ACCOUNTING OR BILLING OR PAYMENT OR CHARG?) (10N) (BALANCE OR INFORMATION OR DATA)

? s s2 and server (10N) (stor? or memory or maintain?) (15N) (accounting or billing or payment or charg?) (10N) (balance or information or data)

Completed processing all files

3521	S2
723094	SERVER
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2976526	MEMORY
4955524	MAINTAIN?
123225	ACCOUNTING
86077	BILLING
160974	PAYMENT
2813115	CHARG?
994435	BALANCE
5198794	INFORMATION
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16272	SERVER(10N) ((STOR? OR MEMORY) OR MAINTAIN?) (15N) (((ACCOUNTING OR BILLING) OR PAYMENT) OR CHARG?) (10N) ((BALANCE OR INFORMATION) OR DATA) (15N) S4 681 S2 AND SERVER (10N) (STOR? OR MEMORY OR MAINTAIN?) (ACCOUNTING OR BILLING OR PAYMENT OR CHARG?) (10N) (BALANCE OR INFORMATION OR DATA)

? s s4 and server (10N) (stor? or memory) (15N) (access or accessible or read) (10N) (terminal or client or user or customer or subscriber)

Completed processing all files

681	S4
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7143917	STOR?
2976526	MEMORY
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838014	ACCESSIBLE
2160134	READ
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376411	CUSTOMER
247795	SUBSCRIBER
67327	SERVER(10N) (STOR? OR MEMORY) (15N) ((ACCESS OR ACCESSIBLE) OR READ) (10N) (((TERMINAL OR CLIENT) OR USER) OR CUSTOMER) OR SUBSCRIBER) S5 387 S4 AND SERVER (10N) (STOR? OR MEMORY) (15N) (ACCESS OR ACCESSIBLE OR READ) (10N) (TERMINAL OR CLIENT OR USER OR CUSTOMER OR SUBSCRIBER)

? s s5 and (prepaid or paid or precharged or charged) (W) (amount or cost or price) (15N) (add or added or adding or subtract or subtracted or subtracting)

Completed processing all files

	387	S5
	22071	PREPAID
	196347	PAID
	24183	PRECHARGED
	1034849	CHARGED
	5914390	AMOUNT
	2666943	COST
	351413	PRICE
	1093201	ADD
	3764145	ADDED
	2236027	ADDING
	70075	SUBTRACT
	6	SUTRACTED
	278052	SUBTRACTING
	287	((PREPAID OR PAID) OR PRECHARGED) OR CHARGED) (W) ((AMOUNT OR COST) OR PRICE)...
S6	0	S5 AND (PREPAID OR PAID OR PRECHARGED OR CHARGED) (W) (AMOUNT OR COST OR PRICE) (15N) (ADD OR ADDED OR ADDING OR SUBTRACT OR SUTRACTED OR SUBTRACTING)

? s s5 and (prepaid or paid or precharged or charged) (5N) (amount or cost or price) (15N) (add or added or adding or subtract or subtracted or subtracting)

Completed processing all files

	387	S5
	22071	PREPAID
	196347	PAID
	24183	PRECHARGED
	1034849	CHARGED
	5914390	AMOUNT
	2666943	COST
	351413	PRICE
	1093201	ADD
	3764145	ADDED
	2236027	ADDING
	70075	SUBTRACT
	235887	SUBTRACTED
	278052	SUBTRACTING
	7845	((PREPAID OR PAID) OR PRECHARGED) OR CHARGED) (5N) ((AMOUNT OR COST) OR PRICE)...
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DIGITAL RIGHTS MANAGEMENT IN A MOBILE COMMUNICATIONS  
ENVIRONMENT

GESTION NUMERIQUE DE DROITS DANS UN ENVIRONNEMENT DE  
COMMUNICATIONS MOBILES

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	Country	Number	Kind	Date
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Application	WO	2002IB2591		20020703
Priorities	US	2001303157		20010706
	US	200295062		20020312

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FI; FR; GB; GR; IE; IT; LU; MC; NL; PT;  
SE; SK; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;  
ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;  
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English Abstract:

The invention provides a method, system, and computer program product to control the access, copying, and/or transfer of a digital asset (136) by mobile, wireless devices (100, 140) using a digital voucher (137). The digital voucher (137) references a primary

content that contains all of the expression for that particular asset (136) and a secondary content that contains information that can be distilled out as a preview. The information in the primary content can be limited to a specified duration or a specific number of viewings. The author, owner, or possessor of the digital asset (136) specifies the terms and conditions for distribution of the digital asset (136). The digital voucher (137) authorizes the mobile, wireless device (140) to access a specified primary or secondary content that may be located elsewhere in the network. The mobile, wireless device (140) can download a copy of portions or all of the content (136) depending on the terms specified in the voucher (137).

#### Detailed Description:

...primary or secondary content that may be located elsewhere in the network. The mobile, wireless device can download a copy of portions or all of the content to be viewed, played, or executed, depending on the terms specified in the voucher. The principles of the invention apply even where the voucher and... duplicated copy of the content, based on the terms specified in the voucher. The principles of the invention apply even where the voucher and the content are located in any other nodes in the network.

Still farther in accordance with the invention, distribution by giving or transferring possession of the content is accomplished by a digital voucher that is stored in the mobile, wireless device. The digital voucher authorizes the mobile, wireless device to cause the transfer of possession of a specified primary or secondary content, from a currently specified distributing computer to receiving terminal. The digital voucher is sent from the mobile, wireless device to a voucher server in the network, which transforms the identity of the custodian specified in the voucher from the distributing computer to the receiving terminal. The receiving terminal can then download the content from the distributing terminal, based on the terms specified in the voucher. The principles of the invention apply even where the voucher and the content are located in any other nodes in the network.

In one aspect of the invention, the method begins by storing the primary content in a distributing computer. To control the disposition of the content, the mobile, wireless device stores a primary voucher and a secondary, preview voucher. The primary voucher allows the user of the mobile, wireless device to control the primary content in accordance with the terms and conditions specified in the primary voucher. The primary voucher includes a first pointer to the primary content and a...onto the receiving terminal were previously available to the mobile, wireless device.

Further in accordance with the invention, a method is disclosed for controlling the transfer of dormant rights to digital asset in a mobile environment. The method begins by storing a digital asset content in a distributing computer in a... ...in a first device in the network, the voucher including a pointer to the content, use information specifying the type of use intended for the content, restriction information limiting usage of the content, and identity information identifying a second device in the network. The restriction and identity information in the voucher prevents the first device from using the

content.

However, the first device can super-distribute the content by transferring the voucher to the second device. There, the voucher permits the second device to use the content, in response to the restriction and identity information in the voucher. The voucher can also include clearing house information which requires the second device to report its use of the content to a clearinghouse computer in the network. The clearinghouse information can include a name of the clearinghouse, its public signature verification key, and a network address where the use of the content can be reported.

Further in accordance with the invention, a method is disclosed for deferring payment for a digital asset in a mobile environment. The method begins by storing a digital asset content in a distributing computer in a network. Then, in accordance with the invention, the method registers a buyer device in the network, with a clearinghouse computer in the network. The clearinghouse sends to the buyer device a certificate including a signing key for the buyer device and a charge authorization ticket that is valid for a specified total purchase amount. The buyer device then sends to a seller device in the network, a copy of the certificate and an offer indication to pay a price to the seller device for the content. The seller device verifies the validity of the certificate as the offer of payment by the buyer device. The seller device then sends to the buyer device a voucher including a pointer to the content, use information specifying the...the clearinghouse, the offer indication by the buyer device, to obtain compensation for the price of the content. In one embodiment, the clearinghouse sends a bill to the buyer device to collect the price. In another embodiment, the clearinghouse deducts the price from a prepaid amount previously paid by the buyer disclosed for controlling the transfer of dormant rights to digital asset in a mobile environment. The method begins by storing a digital asset content in a distributing computer in a...clearing house information in the voucher can requiring the second device to report its use of the content to the first clearinghouse computer in the network,

Further in accordance with the invention, a method is disclosed for conducting transactions up to a limit, for transferring rights to a digital asset in a mobile environment.

The method begins by storing a digital asset content in a distributing computer in a network. Then, in accordance with the invention, the method stores a content of a digital asset in a distributing computer in a network. Then the method registers a seller device in the network, with a clearinghouse computer in the network. The clearinghouse then sends the seller device a seller's voucher from, including a pointer to the content, use information specifying the type of use intended for the content, restriction information limiting usage of the content; and transaction information allowing transactions up to a limit, for transferring rights to the content. Thereafter, a buyer device in the network is registered with the clearinghouse computer. The clearinghouse then sends the buyer device a certificate including a signing key for the buyer device and a charge authorization ticket that is valid for a specified total purchase amount. Thereafter, the buyer device sends to the seller device, a copy of the certificate and an offer indication to

pay a price to the seller device for the content. The seller device verifies the validity of the certificate as the offer of payment by the buyer device. After the verification, the seller sends the buyer device a buyer's voucher including a pointer to the content, use information to the clearinghouse, the offer indication by the buyer device, to obtain compensation to the seller device for the price of the content. The transaction information of the seller's voucher prohibits the seller device from conducting further transactions beyond the limit.

Further in accordance with the invention, a method is disclosed for transferring rights to a digital asset that includes preview copies that convey with the asset in a mobile environment. The method begins by storing a primary content and a secondary content of a digital asset in a distributing computer in a network. Then the method registers a seller device in the network, with a clearinghouse computer in the network. The clearinghouse then sends the seller device a seller's primary voucher, including a pointer to the primary content, use information specifying the type of use intended for the primary content, restriction information limiting usage of the primary content; transaction information allowing transactions up to a primary limit, for transferring rights to the primary content, and a reference to a seller's secondary voucher. In addition, the clearinghouse then sends the seller device the seller's secondary voucher from the clearinghouse, the secondary voucher including a pointer to the secondary content, use information specifying the type of use intended for the secondary content, restriction information allowing a preview copy of the content to be distributed to another user; and transaction information allowing transactions up to a secondary limit, for transferring a preview copy. Thereafter, a buyer device in the network is registered with the clearinghouse computer. The clearinghouse then sends the buyer device a certificate including a signing key for the buyer device and a charge authorization ticket that is valid for a specified total purchase amount.

Thereafter, the buyer device sends to the seller device, a copy of the certificate and an offer indication to pay a price to the seller device for the content. The seller device verifies the validity of the certificate as the offer of payment by the buyer device. After the verification, the seller sends the buyer device, a buyer's primary voucher including a pointer to the primary content from the clearinghouse, the buyer's secondary voucher including a pointer to the secondary content, use information specifying the type of use intended for the secondary content, restriction information allowing a preview copy of the content to be distributed to...using the ID for the content and the encryption key for the content. Then the method sends the download token from the device to the distributing computer with a request to download the content after validating the download token.

Then the device receives the content at the device, in response to the validation of the download token at the distributing computer. As a result, only authorized devices in the network can successfully download the content. The download token can further include a digital signature of the device and a certificate issued by a certifying authority that certifies the authenticity of the digital signature of the device. Still further, a payment authorization can accompany the download token sent to the distributing computer.

In another aspect of the invention, a system is disclosed to enable a wireless device in a mobile communication environment, to obtain a right to give to another device, protected content of a digital asset stored in any one of a plurality of content servers. The system includes a plurality of content servers in a network, each storing a content of a digital asset. The system further includes a voucher server in the network, for registering the digital content in the plurality of content servers. In addition, the

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system includes a DRM agent or payment server in the network, for obtaining information about the content from the voucher server. The operation of the system begins with a wireless device in a mobile communication environment, sending to the DRM agent a ...Radio Industries and Businesses.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying figures best illustrate the details of the method, system, and apparatus for controlling the distribution of a digital asset in a mobile communication environment, both as to its structure and operation. Like reference numbers and designations in these figures refer to like elements.

Figure I is a network diagram that depicts the delivery of a Mobile Rights Voucher content package to a receiving terminal from either a distributing terminal or a network service.

Figure 2 is a network diagram that expands the system shown in Figure I by illustrating an exemplary communication between the receiving terminal and the network service.

Figure 3A is an abstract representation of an embodiment of a Mobile Rights Voucher.

Figure 3B is an illustration of an XML embodiment of...the XML embodiment of the Mobile Rights Voucher shown in Figure 3A.

Figure 6 is a functional block diagram that illustrates the interaction of a distribution terminal and a receiving terminal in the distribution of a primary and a secondary content in the Mobile Rights Voucher copy intent process.

Figure 7 is a functional block diagram that illustrates the interaction of a distribution terminal and a receiving terminal in the non-personalized Mobile Rights Voucher copy intent process for sending a preview copy of protected digital content.

Figure 8 is a functional block diagram that illustrates the interaction of a distribution terminal, a receiving terminal, and a voucher server in the personalized Mobile Rights Voucher give intent process for sending a preview copy of protected digital content.

Figure 9 is a functional block diagram that depicts a network environment for distributing a Mobile Rights Voucher by illustrating a use case scenario in which a sending terminal accesses a content service and a voucher service via a cellular network

to purchase two screen savers.

Figure 10 is a network process diagram illustrating the basic controlled download protocol between a receiving DRM device, the receiver protocol engine, the ...shown in Figure 12.

## DETAILED DESCRIPTION OF THE INVENTION

### Mobile Rights Voucher

The Mobile Rights Voucher disclosed herein manages the lifecycle of a piece of content and the associated property rights held by the creator or agent of the digital content. In addition, the Mobile Rights Voucher can facilitate flexible payment for content and can deliver the content separate from the voucher. The Mobile Rights Voucher is a message that can be sent by electronic mail, a Multimedia Messaging Service (MMS), or a Short Messaging Service (SMS). Alternatively, the Mobile Rights Voucher can be downloaded using a Wireless Application Protocol (WAP) or a Hypertext Transfer Protocol (HTTP).

Smart Content Object is a content encapsulation architecture that includes smart routing capabilities for content and can be useful for application routing. The Mobile Rights Voucher can use the Smart Content Object for expressing rights information. The Smart Content Object and Mobile Rights Voucher ...memorylimited devices such as a mobile phone or a personal digital assistant. The Mobile Rights Voucher is not bound in any way to the Smart Content Object and can be used in other transport architectures such as MMS and Hypertext Transfer Protocol/Multipurpose Internet Mail Extensions (HTTP/MIME).

The Mobile Rights Voucher is a "light-weight" DRM that can benefit a mobile environment. Additionally, the Mobile Rights Voucher can express usage rights for "low value" content such as cellular telephone ringing tones, operator logos, and additional levels for cellular telephone games.

In one embodiment, the Mobile ...and can allow devices that implement this specification to interoperate. Due to constraints of implementation and industry-wide adoption, this specification does not attempt to deliver on all of the promise of DRM in a single step. Thus, the Mobile Rights Voucher full baseline specification is split three subsets. Subset A of the baseline specification supports no rights for a piece of content. Subset A relies upon another entity such as a service provider who supplies the mobile device to implement the Mobile Rights Voucher as a "stub...upon a non-valid version of ODRL and is extended slightly in appropriate places to allow for the envisioned use cases.

Figure 1 is a network diagram that depicts the delivery of content package 135 from either distributing terminal 100 or retail content service 110 to receiving terminal 140. Distributing terminal 100 is coupled to either personal area network 120 or cellular network 130. Personal area network 120 is a short-range network that implements an architecture specification such as Infrared data association (IrDA), Bluetooth, or object exchange architecture. Cellular network 130 is a communication network such as an analog signal, global system for mobile (GSM) communications, general packet radio

service (GPRS), time-division multiple access (TDMA), or code-division multiple access (CDMA). In addition, cellular network 130 can accommodate Enhanced Data Rates for GSM Evolution (EDGE), an evolution of GSM and TDMA systems that increases network capacity and data rates up...personal area network 120 coupling retail content service 110 and receiving terminal 140. An owner (not shown) coupled to retail content service 110 selects to transmit content package 135 to receiving terminal 140 using personal area network 120. Content package 135 is the same as in the first delivery scenario and includes content object 136 and voucher object 137.

The fourth content delivery scenario shown in Figure 1 involves cellular network 130 coupling retail content service 110 and receiving terminal 140. An owner (not shown) coupled to retail content service 110 selects to transmit content package 135 to receiving terminal 140 using cellular network 130. Content package 135 is the same as in the first delivery scenario and includes content object 136 and voucher object 137.

Figure 2 is a -network diagram that expands the system shown in Figure I by illustrating the communication between retail content service 110 and receiving terminal 140. A user (not shown) is coupled to receiving terminal 140. Receiving device 140 communicates with retail content service 110 that includes content catalog 210, payment system 220, voucher system 230, and content hosting 240.

When the user carries receiving terminal 140 into the communication range of retail content service 110, the user sends payment request 221 to payment system 220 and receives payment response 222 from payment system 220. The payment mechanism includes subscription-based, micro, and pre-paid payment systems. The payment is realized by sending an SMS message to a predetermined number maintained by an operator. The receipt of the message generates a charge to the bill the user gets from the service operator and the user can pay the fee using a typical telephone bill payment method. In one embodiment, the format of payment request 221 and payment response 222 ...HTTP.

The user receives either a Mobile Rights Voucher or a reference to the Mobile Rights Voucher from retail content service 110 as part of payment response 222. If the user receives the reference to the Mobile Rights Voucher, receiving terminal 140 retrieves the Mobile Rights Voucher by sending voucher...voucher identifies an asset, lists the usage and associated constraints for the asset, includes meta-information to identify a voucher service, the asset, and a payment transaction method, and provides a mechanism to unlock the asset if protection is used.

As shown in Figure 3A, Nokia Rights Voucher 300 is a...based)

Protection ..... Not Available

IMPACT ..... Minimal impact on phone client. Legacy phones will be able to use content download. Need for voucher server (and related payment). Prepares for Phase Two service model.

Subset C of the Mobile Rights Voucher DTD specification supports the second phase of the Light DRM implementation. The... string. The "uiX" element includes parsed character data. The DTD requires the presence of the "transaction" element on line 13 because the "transaction" element specifies payment-related information in a format that is defined by the type of payment chosen. The "transaction" element includes parsed character data. The DTD requires the presence of the "usage" element on line 14 because the "usage" element defines...string. The "uid" element includes parsed character data. The DTD requires the presence of the "transaction" element on line 14 because the "transaction" element specifies payment -related information in a forniat that is defined by the type of payment chosen.

The "transaction" element includes parsed character data. The "protection" element on line 15 is an optional requirement that stores protection information for the content... string. The "uid" element includes parsed character data.

The DTD requires the presence of the "transaction" element on line 15 because the "transaction" element specifies payment-related information in a forniat that is defined by the type of payment chosen. The "transaction" element includes parsed character ...voucher is delivered to a terminal it is associated with an identifier. The identifier is a valid URI, is delivered with the voucher in the delivery package, and is stored with the voucher on the terminal. Examples of the delivery packaging include multipurpose Internet mail extensions (MIME), multimedia messaging system (MMS) and NSC. Valid URI schemes include URL and MSG-ID. This supports voucher identification which is necessary for distribution.

An asset (i.e., an item of digital content) is associated with an identifier. The identifier is a valid URI. The identifier is delivered with the asset in the delivery package and is stored with the asset on the terminal. Examples of the delivery packaging include MIME, MMS and NSC. Valid URI schemes include URL and MSG-ID. This supports asset identification and is critical for the expression of rights in the voucher.

A piece of digital content delivered as part of the Light DRM system has an associated rights voucher that contains the usage rights controlling access to the content.

All access is governed through the voucher and the rights expressed within the voucher.

A system that implements the Mobile Rights Voucher architecture disclosed herein...this identity is not present in the terminal then the intent must not be used. The identity in the voucher is expressed as a URI.

Distribution by copying the content is accomplished by a digital voucher stored at a user's node in the network. The user's node is the distributing terminal and can include the user's mobile or wireless device. The digital voucher authorizes the distributing terminal to cause the duplication of the specified primary or secondary content that may be located in the distributing terminal or elsewhere in the network. The receiving terminal can then download the duplicated copy of the content, based on the terms

specified in the voucher.

As shown in Figure 6, the Mobile Rights Voucher includes support for the distribution of content using a "copy" intent and a "give" intent. These are only two of the building blocks used in the creation of a content super distribution business.

The "copy" intent has the semantics to make a faithful duplicate of the content resulting in a new instance with the same specified rights (the "duplicate" here refers to the new instance). The copier does not lose any rights to the content. The copied assets may have to be regenerated if the voucher is "personalized" (this will be discussed later).

If a voucher does not contain a...itself that allows secondary voucher 614 to create a duplicate of itself If an application supports the Mobile Rights Voucher copy or forwarding feature, the user can invoke a forwarding operation to copy the content to another user coupled to receiving terminal 240. The "copy" intent associated with primary voucher 612 duplicates primary content 602 as primary content 622, and signals secondary voucher...are the same as with copy. Thus, give is performed with the aid of an intermediary voucher server rather than performing the give from one terminal to another.

The remaining rights differ from the "copy" intent. When a voucher is given to another party only the remaining rights from that voucher can be given. In this scenario, the giver uses an intermediary voucher server rather than performing the...encryption, and a combination of tamper resistance and encryption. The protection strategy depends on features of the device and the time-sensitive nature of the content.

1 5 The Mobile Rights Voucher can be used in solutions where the content is of a very low value but is distributed in a very large volume. In this environment, distribution costs are very low. In addition, the need for protection is balanced with the content value, cost of protection (terminal and network infrastructure) and the consumer usability issues.

If the Mobile Rights Voucher protects the operating environment, it is not possible for content with associated Mobile Rights Voucher vouchers to be distributed outside the operating environment. This is termed a "closed system" approach. The major cost in this solution is to engineer terminals that will respect this restriction for content with vouchers and to ensure that inter-operating terminals (developed by other vendors) will also respect the closed system requirement. On the other hand, if...itself that allows secondary voucher 714 to create a duplicate of itself.

If an application supports the Mobile Rights Voucher non-personalized copy feature, the user can invoke a forwarding operation to copy the content to another user coupled to receiving terminal 240. When the user selects to send a preview voucher to receiving terminal 240, the distributing terminal 200 retains ... fully automatic. User interactions should not be inserted in the client-server interaction. The mechanism above can be described as "I want to give this content to someone to whom I will give the index

created by the voucher server".

Distribution by giving the content is accomplished by a digital voucher stored at a user's node in the network. The user's node is the distributing terminal and can include the user's mobile or wireless device. For example, the digital voucher can authorize the distributing terminal to cause the giving of a preview copy of a digital asset to a receiving terminal. The digital asset may be located in the distributing terminal or elsewhere in the network. The user invokes a give operation in the distributing terminal, to send a copy of a secondary voucher specifying the preview rights, to a voucher server. The voucher server recognizes the give operation and responds with a reference voucher that includes an indication of no rights to the primary content. The distributing terminal receives the reference voucher from the voucher server. The distributing terminal then sends the reference voucher ...that allows secondary voucher 814 to create a duplicate of itself

If an application supports the Mobile Rights Voucher personalized give feature, 15 the user can invoke a forwarding operation to copy the content to another user coupled to receiving terminal 240. When the user selects to send a preview voucher to receiving terminal 240, a copy of secondary voucher 814 is ... small.

The following is an exemplary voucher that demonstrates the voucher when it is embedded into a MWE multi-part package.

```
MIME-Version: 1.0
Content-type: multipart/mixed; boundary=11simple boundary"
--Simple boundary
Content-type: text/MRV;
<rights>
<usage>
<asset>mid:1@a.b</asset >
<display></display>
</usage>
</rights>
--simple boundary
Content-type: vnd.nok.screensaver; Content -transfer-encoding: base64
Message-ID: <I@a.b>
--base64 encoded content information
--simple boundary-In the above example, the full display rights are embedded into a
MIME multi-part package and associated with the content element of the parent voucher.
Thus, the voucher is very small.
```

Figure 9 depicts a network environment for distributing a Mobile Rights Voucher that presents voucher related issues and example vouchers. In the use case scenario shown in

Figure 9, a sending user (not shown) coupled to sending terminal 900 accesses content service 930 and voucher service 940 via cellular network 130 to purchase two screen savers. Since the sending user is happy with the purchase, sending terminal 900 forwards a preview copy of the screen savers to receiving terminal 910 via personal area network 120. A receiving user (not shown) views the preview copy of the screen savers to evaluate the screen savers. If the receiving user is happy each screen saver. The MMS message also contains a full rights voucher and a preview voucher. The full-right voucher is personalized for sending terminal 900 and supports forwarding a preview copy to another user for a limited period of time. The preview voucher allows a one-time preview of the assets and supports forwarding of the preview voucher to... 13

Narrow 14

Constrain 15

Count 16

Start 17

End 18

Datetime 19

Individual 1A

Table 1

### Using Independent Clearinghouses for Monitoring Digital Rights Transfer Transactions

An important aspect of digital rights management is the design of mechanisms that can enable ...types of revenue sharing among the players involved (e.g., publishers, resellers, etc.). This invention proposes a flexible and scalable mechanism.

New copies of digital content can be created effortlessly. This enables large-scale distribution and super-distribution of the content. To share revenue effectively, the creation of new copies needs to be accurately monitored. Typically, a clearinghouse monitors the copies and may be tightly integrated with the DRM system (e.g., a single global clearinghouse, or a single network of clearinghouses).

The described scheme for reporting new copies is extremely flexible. In the most general case, this scheme ...check whether a manufacturer (directly or indirectly) certifies the specified clearinghouse. If not, step 2 above will fail. Certifying clearinghouses may allow the manufacturer to charge the certified clearinghouses. But technically, such a certificate is not necessary. A compliant device may enforce vouchers for any clearinghouse. This may enable widespread grass-roots level publishing of content.

### Charging-Independent Method for Containing Off-Line Super-Distribution of Material with a MonetaKy Value in a DRM Environment

One of the bigger hindrances of off-line (ad-hoc) super-distribution is the collection of rights and other charges. This invention formulates a method for partially guaranteeing that all players in a DRM transaction eventually get their dues. The solution has been developed with a mobile music player in mind, but applies as well to any kind of digital content in a DRM scheme.

DRM infrastructures generally enforce protected distribution and presentation of digital

content so that digital rights can be protected and necessary charges collected for the rights owners. Payment or charging solutions, with the exception of some electronic payment'solutions, normally require network interaction with a charging server of some sort. In an ideal DRM model, users should be able to spread or move content between themselves in various manners defined by the rights associated with the content. One model allows content distribution to be charged for between users outside of network coverage (only peer-to-peer connection between users). This model usually either assumes the existence of a payment scheme that is integrated with the DRM or that the selling user has purchased additional rights in the first place that he then can sell forward in the off-line case. Related problems usually involve currency conversions, taxation requirements and distribution of monetary value to all involved partners in the distribution chain.

Previously, this problem was solved by.

- 1 . Enforcing a network connection through a ubiquitous network connection (e.g. distribute content over infrared);
- 1 5 2. Including a payment scheme in the DRM infrastructure; and
3. Requiring the purchasing user to purchase "additional" rights in advance, in the form of a "season ticket" or equivalent.

This solution is.

1. Independent of the payment or charging mechanism; and
2. Makes ad-hoc or "spur of the moment" distribution of content available while still restricting the monetary risk for the involved rights owners.

Thus, the problem involves how to support off-line super-distribution, that is, if you give me a copy, so that the recipient can use the content right away ...off-line. The next time user A is on-line, user A can submit the signed statement to the clearinghouse. The clearinghouse can then either bill user B or deduct the amount from a pre-paid account. The clearinghouse can also give user A credit for the sale (e.g., a...Most users behave more or less rationally. In this scheme we let the users or devices acquire a certain amount of debt (unrelated to any charging/payment mechanism) off-line, and tie this debt to the DRM device. The debt is tied based on the rule that the total value of the...device. So the user of the device is motivated to clear the debt of the device the next time when he is connected to the network by the fact that he again has the "whole spending limit" to use in upcoming off-line situations.

Off-line transactions that can increase the debt of device come in two forms.

First, user A sells content to user B and collects money immediately. In this case the debt will be tied to the device associated with user A. No debt is tied to the buying user.

Second, user A "sells or distributes" content to user B and the buyer "promises" to pay

later (when he comes into network coverage again). In this case the debt will be tied to the device associated with user B. No debt is tied to the selling user...lack of storage on portable devices, a user cannot keep copies of all the content for which he bought rights. He should be able to pay for the content once, use it, delete it to use the storage space for some other purpose, but later download the same content without having to pay again.

One approach is to assume that all copies of a given piece of content are encrypted with the same key and that the encrypted...to download encrypted content may be undesirable, for example, during peak hours. This requires a way to perform controlled content transfers. One solution is to charge for content downloads. Another solution is to require that the receiving device prove its knowledge of the content encryption key by constructing a download token...Methods to generate and evaluate digital signatures to insure the source of the digital program are described in the book by Richard E. Smith entitled Internet CKOtogroup , published by Addison Wesley, 1997. To insure that the source of the data cannot be repudiated, a digital signature can be appended to the data, as described in the book by Richard E. Smith.

#### Lending Rights to DRM Protected Content

The content is transferred from one consumer to another by means of portable media such as compact disk or floppy disk. Prior to transferring the content, the sender opens a transaction with a clearinghouse and informs it about the transfer of rights. The sender opens the existing license and then encrypts it with the receiver's public key. The receiver can then use the loaned content based on the business rules in the license. The content is returned to the original sender in the same way as it was sent in the first place.

Another way to transfer content is to send a reference to the receiving consumer, which indicates where to get the new license for the content. The ... the new license via this connection, This way the receiving consumer does not need to send its public key to the sender.

When the content is DRM protected, it cannot be lent to another persons use in a traditional way because the license is tied to one device at a ...impossible to positively identify the user (several users may get the same ID).

#### Distributed Rights Gateway System in a Mobile Environment

This invention relates to distributed rights management in the context of mobility.

This invention also utilizes a distributed payment mechanism. Scenarios of right updating and super-distribution are considered. Storage of -rights remotely is considered for device portability.

This invention is a model of highly distributed systems suitable for mobile environments. Rights of ownership and usage of a content for a mobile user is achieved through mutable and mobile metadata associated with content. Distributed payment nodes control the mutation of metadata. This metadata is solely responsible for decision to let the user use content. This metadata is replicated to a server near the user. If the

device moves to a location closer to another server, the user's rights in the form of Metadata is transferred to this new server.

The invention aims to solve the problem of network latency in acquiring rights to use content in a mobile device. This invention also backs up rights in a server that is more reliable than a mobile device and solves the problem of super-distribution through rights portability.

Earlier solutions required generation or updating of rights for a content from a remote retail site. Since there is only one place where rights can be obtained, it is not the best solution for mobile environments keeping network latency and fault tolerance in mind.

By storing the rights in a decentralized fashion and also updating them in a decentralized fashion through appropriate payment nodes, this invention will minimize the network latency to update rights for any content. The decentralization of rights storage will help in their backup that is an important use case for mobile devices. This invention emphasizes that only the payment nodes are ...user wants to update his rights for content, he contacts rights gateway 1120 through an agent on mobile device 1110. Rights gateway 1120 will use payment node 1122 to update the metadata associated with the digital content. The metadata is available in an encrypted form and can only be updated by rights gateway 1120 after approval by payment node 1122. The user will then download this metadata with updated rights. The user is then free to continue using the digital content. If the user wants to use the content in another device, he can transfer the content to the other device. ...device that plays the digital content will look at the metadata to identify if the user has adequate rights to use the content. If the user wants to distribute the content to another user (recipient), he will transfer the metadata associated with the content to the recipient's rights gateway, rights gateway 1150. This gateway will change the fields within the metadata such that it belongs to the recipient and also contacts payment node 1152 to purchase the rights.

Once the rights are purchased, the recipient is free to download content and its associated rights to his device...perform the following operations on the metadata.

1. Mutate the metadata, to reflect changes to rights and rules associated with content and user;
2. Obtain payment authorization to change the rights portion of inetadata;
- 3 .Send the payment data capture information to clearinghouse 1140;
4. Send the authorization reversal request message to the backend payment system and change the rights associated with the metadata accordingly;
5. Handle an error returned by backend payment system;
6. Handle super-distribution by exposing a method that accepts a metadata and recipient ID, then ...using a DRM technology that provides a trusted environment for the various components of the system. It is important that all the software entities like payment nodes, rights gateway, and players are trusted. The Nokia niPlatform standard, a comprehensive answer to the challenge of setting up portals throughout national and

international networks, can be used as an interoperability standard for payment nodes and rights gateway.

...Digital Rights Management is a technology providing mechanisms for controlling consumption of digital content. DRM is already being used to some extent in the wireline Internet domain, but there is currently no wide-spread DRM system that is used in the mobile domain. Today copy protection is done in the mobile domain with so called forward-lock method in which the terminal disables the ability to forward the piece of content (e.g. ringing-tone) to another terminal.

One of the attractive features of DRM is super-distribution, that is, the ability to forward content from peer-to-peer and still enabling that the content owner gets paid for each copy. The forward-lock method effectively kills super-distribution and thus we need to discover other DRM mechanisms. The problem with super-distribution is that once it is enabled, it is really difficult to control the bits that are distributed from peer-to-peer.

That is a natural law of the digital world, bits are inherently easy to copy and modify.

Cryptography is the only practical technology that can be used to control the content consumption if super-distribution is used. That means that the content is encrypted and the decryption key is delivered to those terminals that have paid to consume the content.

In other words, DRM enables the paid content model, that is, the content is paid for when it is consumed. Thus, payment is an important function in any DRM system, although it can be considered as separate to DRM.

The invention is the architectural model of the voucher server based Mobile DRM system that enables one to utilize cost-efficient mobile operator payment systems.

The novelty value of this invention comes from the utilization of the mobile payment service provisioning also to manage digital rights-related payment collection. In effect, this means mobile optimizing the DRM system. The most obvious benefits of this approach are the ability to utilize mobile network operator payment systems, related agreements, and user interaction, and minimization of the over-the-air information exchange between mobile terminal and network.

The Internet-optimized DRM systems assume that payment is done with some mechanism in the retail site but do not describe how. That may be due to the lack of effective micro-payment and mini-payment methods on the Internet (as compared with operator billing in the mobile Internet). Thus, the common approach is to separate the payment to be handled as, for example, Internet credit card transaction.

We made the same error in our earlier thinking. Our original architecture was similar to the others, but after reviewing that with our mobile payment people we ended up turning the architecture upside-down. We believe that this new model has novelty value and is a practical way to implement...can be used to discover the terminal's public (if 1 5

- asymmetric algorithms are used) or secret key (if symmetric algorithms are used);
- 8. Payment Service Provider model is used for handling payments;
  - 9. The end user has configured at least one Payment Service Provider into his mobile terminal; and
  - 10. Payment server handles the user interface during voucher acquisition.

The invention is one way to solve the generic problem that all DRM solutions try to solve cost-efficient payment mechanism. Digital content for the mobile domain is cheap (a few euros or less). In addition, it is likely that the end user will buy...creators with a possibility that their content can populate the whole mobile domain. Further, the content originators can use a relatively limited number of mobile payment service providers (e.g., deals with all leading operators in a given market) to conveniently reach almost the whole market.

This all sums up to the fact that each end user will have to pay a small amount of money to a large number of retailers throughout the world. It is not cost-efficient for those retailers to send invoices for small payments. It is also inconvenient for the end user as well.

Our invention introduces the Payment Service Provider (PSP) model into DRM.

The Payment Server is run by an entity that has a close relationship with the end user such as the mobile operator. The PSP infon-nation (access... ...the end user's own mobile operator - but this is not mandated in our architecture. The PSP could be any party that has a flexible billing mechanism based on a user friendly authentication mechanism.

Mobile operators have access to the operator billing system that is the most convenient payment mechanism for small payments. And that can be based on userfriendly MSISDN authentication (i.e., authentication that employs the mobile identity number of the mobile enables one to use operator billing for all DRM related payments by introducing the Mobile Payment Service Provider model into DRM. The Mobile Rights Voucher architecture has mobile optimizations and makes the Payment Service Provider the "user interaction agent" instead of the retail site.

The disadvantage of this solution is the fact that Mobile Payment Service Provider (mPSP) controls the user interaction with the consumer. This principle is quite mobileusage centric and not as flexible as the Web model. However ...of the architectural elements of the Mobile DRM system. The architectural elements that comprise the Mobile DRM system include content server 1260, voucher server 1250, payment server or DRM Agent 1220, and terminal 1210. Content server 1260 is a web server that is used to distribute content to end users and.... 1250 handles content registration requests from Content Servers (price, optionally content encryption key generation, optionally content ID generation) and handles also voucher generation requests from Payment Servers (receives content ID and terminal's DRM ID and generates in return a voucher for that specific terminal and piece of content).

Payment server or DRM Agent 1220 handles user interface during voucher acquisition, communicates with a back-end payment mechanism (e.g. operator billing, credit card system) and requests vouchers from the Voucher Servers for end users. Terminal 1210 downloads content from Content Servers, acquires via Payment Server vouchers that enable the terminal to access content. Content may be distributed from terminal to terminal (super-distribution).

Figure 15 is a flow diagram...Terminal 1210 through the DRM Agent 1220. During message flow "4. ACCEPTANCE", Terminal 1210 sends a message accepting the received offer. During message flow "4a.

PAYMENT", DRM Agent 1220 handles the payment transaction with the Payment Server 1500. During message flow "5. VOUCHER REQUEST", DRM Agent 1220 requests Voucher Server 1250 to generate the voucher. During message flow "6.

VOUCHER DELIVERY usage limitations for the content.

The following discussion of content server 1260, terminal 1210, DRM agent 1220, payment server 1500, and voucher server 1250 shown in Figure 12 and Figure 15, as well as the relationships CS-VS, DA-VS, T-DA, CS... content to the CS for distribution to end users. After registration process the VS is able to handle voucher requests (for that specific content) from Payment Servers.

DRM Agent-Voucher Server Interface DA-VS - The DRM Agent (DA) requests information from VS about a piece of content (identified with a content...end user wants to consume Unpaid content.

Terminal passes information about the content (content ID, Voucher Server URL (carried with the content) to its own Payment Service Provider (PSP) that operates the DA. DA sends an offer to the Terminal and the terminal accepts or rejects it. If the offer is accepted, DA handles the payment transaction (e.g. operator billing) and requests a voucher from the VS through DA-VS interface and delivers that voucher to the terminal.

Terminal-Content Server Interface CS-T - The terminal downloads protected content from the CS.

Terminal-Terminal Interface T-T - The terminal super-distributes content to another terminal.

DRM is a technology that provides us with a promise that we are able to control the consumption of digital content. This can be...paid content model).

This results in three major requirements for the DRM system.

a) The DRM system must be able to control the consumption of content (i.e. copy protection);

b) The DRM system must enforce the paid content model (i.e. a convenient and cost efficient payment mechanism must be...and (c) seem to conflict, they can be fulfilled if the protection mechanisms and content distribution mechanisms are orthogonal, that is, the DRM system is content transport agnostic. This implies that piggybacking transport layer security mechanisms for content protection purposes may result in a system that severely restricts the content distribution possibilities.

Super-distribution is a great opportunity for content owners. Each piece of content has a possibility to get distributed from peer-to-peer to a large population.

Whether that happens for a particular piece of content or not depends on end user's subjective perception of the quality and price of the content. People vote with their forward-buttons. We want to encourage these kind of dynamics that reward content owners with great content.

The main operative functions of the DRM system are.

- . Content registration to the DRM system;
2. Content distribution to end users (from network to terminal and terminal to terminal);
- 3 . Voucher acquisition process that enables the end user to consume the content. This includes the payment process; and
4. Money settlement process during which each value chain participant gets his share of the money collected from the end user.

Figures 13...the end user. If end user accepts the offer DRM Agent deducts the appropriate amount of money from the end user's account (e.g. operator billing) and requests the Voucher Server to generate one voucher for that terminal. The voucher is then sent to the terminal and after that the terminal in the value chain gets a separate share of the money.

DRM Agent is entitled to its share because it takes care of the payment transaction with the end user. DRM Agent keeps track of all issued vouchers.

Voucher Server is the middleman between Content Servers and DRM Agents and...content and the Voucher Servers that generate the vouchers (i.e., DRM Agent plays a central role in the voucher acquisition process) especially in the payment transaction. The rationale for introducing a middleman is related to the difficulty of doing cost-efficient and convenient invoicing between multiple Voucher Servers and the end user.

The most important role of the DRM Agent is to handle the payment collection from the end user before the voucher is issued by the Voucher Server. This implies that there is a close relationship between the end...the mobile operator (i.e., the terminal always initiates the voucher acquisition dialog with one of the end user's own DRM Agents).

The External Payment System may be, for example, operator billing system or credit card payment system.

All of the terminal management issues are separated to a DRM Terminal Infrastructure (DRMI). These include mechanisms for terminal initialization, personalization, key renovation and...communications must be protected. SOAP requests and responses over http with a SSL connection. VS acts as an http-server, CS as an http-client. Content registration may be quite infrequent in some cases. This implies that the interface ...can also be implemented with, for example, secure electronic-mail messaging between CS and VS operators.

Referring again to Figure 12 and Figure 15, the Content Server-Terminal CS-T interface is used to distribute the DRM protected content from the Content Server to the Terminals. Content object downloading network originated MMS messaging. There are no major security requirements for this interface. However, it is useful but not mandatory for the end user to authenticate the Content Server. The same goes for the other way around, although that is just normal behaviour of a Content Server and thus out of the scope of the DRM system. Spamming control needs to be implemented at some stage.

Content downloading in a standard http/WAP-browsing session. The content may be wrapped inside a MIME or WAP multi-part message. Content may also be distributed with MMS messaging. Since AIMS messages are based on RFC 822 the wrapping is similar to the browsing/downloading scenario. The actual transport mechanism should... object is DRM specific.

Referring again to Figure 12 and Figure 15, the Terminal-DRM Agent T-DA interface is used to acquire a voucher. Payment transaction is done via this interface. For voucher acquisition, the terminal initiates the acquisition process (T=>DA: CID, Transaction ID, Voucher Server URL, Terminal's DR-M ID), DRM Agent responds and sends optionally an offer for the voucher, end user accepts or rejects the offer and performs payment related authentication, DRM Agent sends the voucher to the terminal.

For GIVE voucher acquisition, the terminal initiates GIVE voucher acquisition process (T=>DA: CID, Transaction ID, Voucher Server URL, Terminal's DR-M ID), DRM Agent responds and performs payment related authentication, DRM Agent sends the GIVE voucher to the terminal, terminal sends the GIVE voucher to another terminal (interface T-T). For GIVE voucher...SSL connection. VS acts as an http-server, DA as an http-client.

Referring again to Figure 12 and Figure 15, the DRM Agent-External Payment System DA-EPS interface is used to collect real money from the end user. The implementation of this ...of arrangements are done between Content Server and Voucher Server, End user (terminal) and DRM Agent, DRM Agent and Voucher Server, DRM Agent and External Payment System, ... disables the end-user from forwarding the content to another terminal. Thus, everyone must get their ringing tone or whatever from the retail site and pay for it.

If we enable super-distribution the rules of the game are radically different. It gets very hard to keep the content within a...prevents the end user. This is already used in Nokia

mobile lock to forward the content to another phones with e.g. ringing tones.

terminal. Payment is done before Forward-lock kills super-distribution.

downloading the content.

Link ...This is content forward-lock, but Content is always downloaded from the forwarding allows the end user to forward the URL into the terminal and payment is

content URL. done before content downloading. This is

an attempt to provide the functionality and

user experience of super-distribution

without a need for...a mobile

communication environment with a wireless terminal by means of vouchers, which are issued by a voucher server having a connection to the mobile network of the terminal and having a connection to at least one content server. The vouchers issued by the voucher server contain usage rules, rights, and business rules relating to a content item and to the user. The voucher is connected to the content but is separate from the content. The voucher is deliverable separately from the content as specified by the terminal or the user to a terminal and/or to a server within the communication network for further processing and/or for acquiring the issued rights.

#### Method and System for Acquiring Rights for Copyright Protected Content

Method for acquiring rights for (copyright) protected content in a mobile communication environment with a wireless terminal by means of vouchers, which are issued by a voucher server having a connection to the mobile network of the terminal and having a connection to at least one content server. The method comprises steps of creating a connection with the content server (and the payment server), selecting at least one content item from a plurality of content items on a content server, specifying the scope of rights to the chosen content item(s), making payment(s) for the selected content item(s), receiving the voucher(s) for the selected and purchased content item(s), and storing the received voucher(s)...a mobile communication environment by means of a wireless terminal using vouchers, which are issued by a voucher server having a connection to the mobile network of the terminal and having a connection to at least one content server and which vouchers specify at least a part of the scope of... ...terminal or at a server having connection to the terminal and accessible to the user of the terminal for controlling the use of the specified content item, e.g., for consuming and/or other (further) processing, e.g., downloading, storing, super-distributing etc. as specified in the voucher. The specified content is delivered to the specified location after the validity and/or authenticity of the voucher is verified. In super-distribution the super-distributed content is made available according to the usage rules for that content item.

#### Method and System for Transferring Access Rights to Copyright Protected Content

Method for transferring access rights to (copyright) protected content in a mobile communication environment by means of a wireless terminals using vouchers, which are issued by a voucher server having a connection to the mobile network of the terminal and having a connection to at least one content server. According to the method at least one

acquired voucher specifying the scope of the rights to a content item is accessible to the user of the terminal for controlling the use of the specified content item, e.g., for consuming and/or other (further) processing, e.g. downloading, storing, super-distributing etc. as specified in the voucher. The voucher can be stored at the first terminal and/or at a server having connection to the first...to the information concerning the voucher, also such information on the receiving terminal that the transaction can be fulfilled (identification of the second terminal and payment server of the second terminal). The voucher of the first terminal is modified according to the transfer intent.

The resulting invention is applicable to virtually...

#### Claims:

...mobile environment

comprising:browsing a content server coupled to a voucher server to locate the digital asset; offering to purchase the digital asset from a **<B>payment</B>** server coupled to the voucherserver;receiving a purchase price for the digital asset from the **<B>payment</B>** server, the purchase price responsive to an inquiry by the **<B>payment</B>** server to the voucher server; and receiving a voucher from the **<B>payment</B>** server.I 0

2 The method of claim 1, further comprising:

registering the digital asset with a voucher server by:assigning ...receiving a preview copy of the digital asset from the other mobile device;evaluating the preview copy;offering to purchase the digital asset from a **<B>payment</B>** server coupled to the voucherserver based upon the evaluating of the preview copy;receiving a purchase price for the digital asset from the **<B>payment</B>** server, the purchase price responsive to an inquiry by the **<B>payment</B>** server to the voucher server; and receiving a voucher from the **<B>payment</B>** server. . A method for controlling the distribution of a digital asset in a mobile environmentcomprising:requesting the digital asset from another mobile device. offering to purchase the digital asset from a **<B>payment</B>** server coupled to the voucherserver;receiving a purchase price for the digital asset from the **<B>payment</B>** server, the purchase price responsive to an inquiry by the **<B>payment</B>** server to the voucher server; and receiving the digital asset from the **<B>payment</B>** server. I 0 7. A method for controlling the copying of a primary digital asset in a mobileenvironment comprising:storing a primary content in...digital rights voucher in accordance with said primary first information of the primary XML digital lights voucher. 1 5 18. A method for controlling the **<B>transfer</B>** of dormant rights to digital asset in a mobileenvironment comprising:storing a digital asset ...method for controlling the transfer of dormant rights to digital asset in a mobile3 0 environment comprising:storing a digital asset content in a **<B>distributing</B>** computer in a network;storing a voucher in a first device in the network, the voucher including:a pointer to the **<B>content</B>**;use information specifying the type of use intended for the **<B>content</B>**;restriction information limiting usage of the **<B>content</B>**;identity information identifying a second device in the network; andclearing house

information; preventing the first device from using the <B>content</B>, in response to the restriction and identity information in the voucher; <B>transferring</B> a new copy of the voucher to the second device in the network; permitting the second device to use the <B>content</B>, in response to the restriction and identity information in the voucher; and requiring the second device to report its use of the <B>content</B> to a clearinghouse computer in the <B>network</B>, in response to the clearing house information in the voucher.

20 The method of claim 19, wherein the clearinghouse information further comprises: 5 a name of the clearinghouse, its public signature verification key, and a network address where the use of the content can be reported.

21 A method for deferring payment for a digital asset in a mobile environment comprising: storing a <B>content</B> of a digital asset in a <B>distributing</B> computer in a <B>network</B>; registering a buyer device in the <B>network</B> with a clearinghouse computer in the <B>network</B>; receiving at the buyer device a certificate from the clearinghouse, the certificate including a signature verification key for the buyer device and a <B>charge</B> authorization ticket which is valid for a specified total purchase amount; sending from the buyer device to a seller device in the network, a copy of the certificate and an offer indication to <B>pay</B> a price to the seller device for the content; verifying by the seller device the authenticity and the validity of the offer indication using the...device, to obtain compensation to the seller device for the price of the content.

22 The method of claim 21, which further comprises:

sending a <B>bill</B> from the clearinghouse to the buyer device to collect the <B>price</B>.I 0

23 The method of claim 21, which further comprises:

deducting by the clearinghouse the <B>price</B> from a <B>prepaid</B> <B>amount</B> previously <B>paid</B> by the buyer device.1 5 24. The method of claim 21, which further comprises: <B>adding</B> by the clearinghouse the <B>price</B> to a debt <B>amount</B> to be <B>paid</B> by the buyer device.

25 ...of claim 21, which further comprises:

providing a bonus from the clearinghouse to the seller device as the compensation.

26 A method for controlling the transfer of dormant rights to digital asset in a mobile environment comprising: storing a digital asset content in a distributing computer in a network; storing a...match with the specification of the first clearing house in the voucher; transferring a new copy of the voucher to the second device in the <B>network</B>, the second device being registered with the first clearinghouse; permitting the second device to use the content, in response to the clearinghouse information, because the first clearinghouse matches with the specification of the first clearinghouse in the voucher; and requiring the second device to report its use of the <B>content</B> to the first clearinghouse computer in the <B>network</B>, in response to the clearinghouse information in the voucher.I 0

27 A method for conducting transactions up to a limit, for transferring rights to a digital asset in a mobile environment, comprising: storing a <B>content</B> of a digital asset in a <B>distributing</B> computer in a <B>network</B>; registering a seller device in the <B>network</B>, with a clearinghouse computer in the <B>network</B>; receiving at

the seller device a seller's voucher from the clearinghouse, the voucher including:a pointer to the <B>content</B>;use information specifying the type of use intended for the <B>content</B>;restriction information limiting usage of the <B>content</B>; and transaction information allowing transactions up to a limit for <B>transferring</B> rights to the <B>content</B> ;registering a buyer device in the <B>network</B>, with the clearinghouse computer in the<B>network</B>;receiving at the buyer device a certificate from the clearinghouse, the certificate including a signature verification key for the buyer device and a <B>charge</B> authorization ticketthat is valid for a specified total purchase amount;sending from the buyer device to the seller device a copy of the certificate and an offer indication to <B>pay</B> a price to the seller device for the content;verifying by the seller device the authenticity and the validity of the offer indicationusing the... monetary value of sales of the content.

30 The method of claim 27, wherein the limit is based on the number of resales of the content.

31 The method of claim 27, wherein the limit is based on an accumulated count of the number of sales of the content.

32 The method of claim 27, wherein the limit is based on a number of preview copie's of the content that are distributed.

33 A method for transferring rights to a digital asset that includes preview copies that convey with the asset in a mobile environment, comprising:storing a primary <B>content</B> and a secondary <B>content</B> of a digital asset in a <B>distributing</B>computer in a network;registering a seller device ...network;receiving at the seller device a seller's primary voucher from the clearinghouse, the seller's primary voucher including:a pointer to the primary <B>content</B>;use information specifying the type of use intended for the primary <B>content</B>;restriction information limiting usage of the primary <B>content</B>;transaction information allowing transactions up to a primary limit for<B>transferring</B> rights to the primary <B>content</B>; and a reference to a seller's secondary voucher;receiving at the seller device the seller's secondary voucher from the clearinghouse,1 0 the seller's secondary voucher including:a pointer to the secondary <B>content</B>;use information specifying the type of use intended for the secondary<B>content</B> ;restriction information allowing a preview copy of the <B>content</B> to be1 5 <B>distributed</B> to another user; and transaction information allowing transactions up to a secondary limit, fortransferring a preview copy;registering a buyer device in the network with the clearinghouse computer in the<B>network</B> ;receiving at the buyer device a certificate from the clearinghouse, the certificate including a signature verification key for the buyer device and a <B>charge</B> authorization ticketthat is valid for a specified total purchase amount; sending from the buyer device to the seller device a copy of the certificate and anoffer indication to <B>pay</B> a price to the seller device for the content;verifying by the seller device the authenticity and the validity of the offer indicationusing the...reference to itself, allowing the seller's secondary voucher to create a duplicate of itself.

39 A method to control the downloading of digital asset content from a server to protect

against resource exhaustion in a mobile environment, comprising:storing a digital asset content in a distributing computer in a ...including:5 a pointer to the content;use information specif@ing the type of use intended for the content;restriction infomiation limiting usage of the <B>content</B>; andprotection information specifying an ID for the <B>content</B> and an encryptionkey for the <B>content</B>;forming a download token in the device, using the ID for the <B>content</B> and the encryption key for the <B>content</B>;sending the download token from the device to the <B>distributing</B> computer with arequest to download the <B>content</B> after validating the download token; andreceiving the <B>content</B> at the device, in response to the validation of the downloadtoken at the <B>distributing</B> computer;whereby only authorized devices in the network can successfully download the <B>content</B>.

40 The method of claim 39, wherein the download token is a message authentication 0 code QAAQ based on the encryption key for the content.

41 The method of claim 40, wherein the download token further includes a digital signature of the device and a certificate issued by a certifying authorization accompanies the download token sent to the distributing computer.

43 A method for issuing rights in vouchers from a voucher server to a wireless device in a mobile communication environment, the rights being to protected content of a digital asset

stored in a <B>content</B> server, comprising:0 storing a digital asset <B>content</B> in a content server in a network;storing a voucher in a voucher server in the <B>network</B>, the voucher having metadataincluding:a pointer to the content;use information specifying the type of use intended for the content;5 restriction information limiting...establishing step ftuther comprises: establishing with the wireless device the connection to the content server using a Multimedia Messaging Service (MMS) of a wireless communications <B>network</B>.

61 The method of claim 51, wherein the receiving step further comprises: receiving at the wireless device, the voucher from the voucher server, using a...wireless device, the voucher from the voucher server, using an object exchange protocol of a wireless communications network.I 0

64 A method for super- distribution of rights by a wireless device in a mobile communication environment, based on vouchers issued by a voucher server, the rights being to protected content of a digital asset stored in a content server, comprising: establishing with a wireless device, a connection to a content server in a network

1 5 storing a digital asset <B>content</B>;selecting with the wireless device, the content in the content server;requesting a first voucher from a voucher server in the <B>network</B> for rights to thecontent the first voucher having metadata including:a pointer to the <B>content</B>;use information specifying the type of use intended for the <B>content</B>;restriction information limiting usage of the <B>content</B>; andprotection information specifying a form of protection for the <B>content</B>;receiving at the wireless device the voucher from the voucher server;sending from the wireless device to the voucher server a request to super-<B>distribute</B> the <B>content</B> to a second device, the ...the second device;

receiving at the wireless device a modified voucher from the voucher server, the modified voucher having metadata including: a pointer to the **<B>content</B>**; use information specifying the type of use intended for the **<B>content</B>**; restriction information limiting usage of the **<B>content</B>**; protection information specifying a form of protection for the content; and the identification of the second device; and sending the modified voucher from the wireless... claim I 1 3, which further comprises: said content key being joined with said reference media ID by performing an exclusive OR operation between said **<B>content</B>** key and said reference media ID, forming said key token; and said recovering of said **<B>content</B>** key being by performing an exclusive OR operation between the media ID and said key token. 115. The system of claim II 3, wherein the **<B>content</B>** is **<B>transferred</B>** on a tangible medium such as a CD ROM or a floppy disk. 116. A method for enabling a wireless device in a mobile communication environment to obtain rights to protected **<B>content</B>** of a digital asset, the digital asset being downloaded to the wireless device from any one of a plurality of **<B>content</B>** servers, the digital asset comprising a content ID, content encrypted with a content key and information on obtaining rights to the content being expressed in a voucher generated by a voucher server in the **<B>network</B>**, comprising: sending a request for a voucher for the said content to a DRM agent, the DRM agent being able to communicate with the voucher server and with at least one of a plurality of **<B>payment</B>** servers designated by the terminal for **<B>payment</B>** transactions; receiving an offer of consideration from the DRM agent including consideration information obtained by the DRM agent from the voucher server; sending an acceptance of the consideration to the DRM agent, which after completed **<B>payment</B>** transactions obtains a voucher for the content from the voucher server; receiving the voucher from the DRM agent, which it obtained from the voucher server... content to a DRM agent, the DRM agent being able to communicate with the voucher server and with at least one of a plurality of **<B>payment</B>** servers designated by the terminal for **<B>payment</B>** transactions; receive an offer ... including consideration information obtained by the DRM agent from the voucher server; send an acceptance of the consideration to the DRM agent, which after completed **<B>payment</B>** transactions obtains a voucher for the content from the voucher server; receive the voucher from the DRM agent, which it obtained from the voucher server... content to a DRM agent, the DRM agent being able to communicate with the voucher server and with at least one of a plurality of **<B>payment</B>** servers designated by the terminal for **<B>payment</B>** transactions; program code ... the voucher server; program code in said computer readable medium for sending an acceptance of the consideration to the DRM agent, which after completed **<B>payment</B>** transactions obtains a voucher for the content from the voucher server; program code in said computer readable medium for receiving the voucher from the DRM... to a DRM agent, the DRM agent being able to communicate with the voucher server and with at least one of a plurality of 5 **<B>payment</B>** servers designated by the terminal for **<B>payment</B>** transactions; receiving an offer of consideration from the DRM agent including consideration information obtained by the DRM agent from the voucher server; sending an acceptance of the consideration to the DRM agent, which after completed **<B>payment</B>** transactions obtains a voucher for the content from the voucher server; receiving the voucher from the DRM agent, which ... content to a DRM agent, the DRM

agent being able to communicate with the voucher server and with at least one of a plurality of <B>payment</B> servers designated by the terminal for <B>payment</B> transactions;receive an offer of consideration from the DRM agent includingconsideration information obtained by the DRM agent from the voucher server;solid an acceptance of the consideration to the DRM agent, which aftercompleted <B>payment</B> transactions obtains a voucher for the content from the voucherverserver;receive the voucher from the DRM agent, which it obtained from the voucherver, ... content to a DRM agent, the DRM agent being able to communicate with the voucher server and with at least one of a plurality of <B>payment</B> servers designated by theterminal for <B>payment</B> transactions;program code in said computer readable medium for receiving an offer ofconsideration from the DRM agent including consideration inf6rmation obtained by theDRM... ...from the voucher server;program code in said computer readable medium for sending an acceptance of the consideration to the DRM agent, which after completed <B>payment</B> transactions obtains avoucher for the content ...with the content including:information specifying the type of use intended for the content;information specifying restrictions, which limit usage of the content;information specifying <B>payment</B> and <B>payment</B> transactions associated to theuse and restrictions to the use of the content;receiving the digital content with the associated information at the voucher server...with the content including:information specifying the type of -use intended for the content;information specifying restrictions, which limit usage of the content;information specifying <B>payment</B> and <B>payment</B> transactions associatedto the use and restrictions to the use of the content;receive the ...the content including:information specifying the type of use intended for the content;information specifying restrictions, which limit usage of the content;information speci@ @ing <B>payment</B> and <B>payment</B> transactions associated to theuse and restrictions to the use of the content;program code in said computer readable medium for receiving the digital content...

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7/K3/2 (Item 2 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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COLLABORATIVE CAPACITY PLANNING AND REVERSE INVENTORY  
MANAGEMENT DURING DEMAND AND SUPPLY PLANNING IN A  
NETWORK-BASED SUPPLY CHAIN ENVIRONMENT AND METHOD  
THEREOF  
PLANIFICATION EN COLLABORATION DES CAPACITES ET GESTION  
ANTICIPEE DES STOCKS LORS DE LA PLANIFICATION DE L'OFFRE ET DE LA

DEMANDE DANS UN ENVIRONNEMENT DE CHAINE  
D'APPROVISIONNEMENT FONDEE SUR LE RESEAU ET PROCEDE ASSOCIE

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Detailed Description:

...features are the CLASS family of services (Call waiting, Call forwarding, Conference calling, Call rejection), enhanced call routing, Number Portability, Calling Card Services, and Audio delivered Information Services (e.g. travel, stocks and weather).

These IN capabilities are enabled by devices such as SCP, STP, SSP and EIP in the

AIN... ...therefore with very few exceptions become a major undertaking and a complex coordination effort to launch a new or modified IN service in the "Core" network environment.

#### Data networks in the "Core"

While the PSTN was growing in feature functionality as well as traffic demand, new data networks have been created to support the inter-networking of computing devices. These data networks provide interconnection to geographically dispersed computing devices at

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backbone with the PSTN network. The services on the PSTN and the data networks are very distinct and non-interoperable (example: voice versus web access).

With the rapid explosion of the Internet, and innovation in packet based technologies, the IP based data network has become the dominant network in terms of user traffic, and its growth is slated to continue exponentially. This phenomenon has created a dilemma for traffic planners and engineers of... ...cable), and new (green field) service providers continue to exploit their advantage, it has become necessary for many incumbent service providers to transition their "Core" network to the "Next Generation Network", where they

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#### New IP based services in the "NGN"

While there are components in the NGN that ensure interoperability between "NGN" and PSTN, there...enable services like integrated messaging, multimedia conversations, on-demand multi-point conference, enhanced security & authentication, various classes of media transport services, numerous automations in electronic internet commerce activities e.g. banking, shopping, customer care, education, etc. As the NGN matures third party value added service providers will develop IP based services that will combine applications such as electronic commerce (procurement, warehousing, distribution and fulfillment) as well as online banking to present the consumer with an integrated boundless shopping experience.

#### Growth of bandwidth in the "NGN"

In addition to... ...bandwidth required to support broadband access.

New and emerging technologies such as Giga-Bit Ethernet and Wire Speed IP may find their way to the network backbone, but not until Giga-bit Ethernet technology matures to handle a wide array of network services such as connection oriented circuit emulation.

The use of Wire Speed IP technology is suitable for an enterprise network but lacks the robustness and scalability needed for carrier grade backbones. For this reason, there will always be a need for ATM in the backbone... ...technologies (e.g. IP, TCP, LDP), as opposed to using existing circuit switched technologies (e.g.

MTP).

IN requirements and architecture in the Next Generation Network (NGN)

Given the huge revenues and global nature of PSTN services, as well as their use of SS7 and AIN technologies, components that allow interoperability... ...will - provide the next level of intelligence in order to address communication over mixed media types, control of multiple session characteristics, collaborative communications needs, ubiquitous network access, "any to any" communications, and multimedia delivered information services. Note that these "NGN" components will continue to evolve to provide similar and enhanced capabilities in the "New Core".

The following provides a description of new components in the "NGN" and the "New Core" that provide enhanced IP based services. The Intelligent IP (j2p) Network enablers are categorized as follows.

**Session Control (Bandwidth, Switching and Routing)**

Media Control (Call Treatment such as media conversion

Policy Management (Directory, Access control, Security... ...permits mobile NGN service users to maintain the same experience and have access to the same information regardless of where or how they access the network.

Example: Assuming a US based NGN service user was roaming in Europe and wanted to access the network but has the use of specific calling... ...efficiently with mechanisms that make remote data available locally for the duration of a session and then caches the information in short term non-volatile memory not in the foreign rules database server. In other words although a user's profile may be physically stored in a Rules database in the United States, the user may access the network from Europe and be automatically granted access to the specific services and features that normally would be available during his US service experience. The remote session controller in Europe would communicate with the cross network location register and rules database server to identify the subscriber's "home" rules database in order to collect the policies and profile of the subscriber for use in Europe; this is done by using the inter device message sets (command and control over the control plane sub network. Unlike other ...recognition, Text to Speech, Text to Fax, etc.

**Protocol Conversion (Policy Management)**

Receives session requirements from Rules database

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of sessions

Interfaces with existing CORE network to process information across NGN  
Extended CORE

0 Filters and Converts signals from SS7 /ISDN to TCP/IP /H.323

Converts Signaling data from one format to another (example: G.728/9 to  
AD/PCM or Vocaltec to Vienna Systems, etc.)

Network Access Control Point (Session Control)

Similar to a switching node on an SS7 circuit switched network.

**First or Last Access Point in the network**

Provides actual call / session handling, routing and processing based on

instructions from the Rules Database server

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Session Manager / Event Logger (Session Control)

This...framework to sustain it for the long term.

Now that the details regarding the NGN have been set forth, information will now be presented concerning billing when the quality of service is degraded.

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Degraded Quality of Service and Billing

A typical telecommunication network comprises multiple telecommunication switches located throughout a geographical area. When a user makes a call, the call may be routed through one or more switches... ...places a call from Los Angeles, California to a party 1 0 112 located in New York City, New York. Such a call is typically transmitted across three (3) switches: the Los Angeles, California switch 1206; the Chicago, Illinois switch 1208; and the New York City, New York switch 1210.1...of the switches, 1206-1210, that switch creates a call record.

The call record contains information on the call, including but not limited to: routing, billing, call features, and trouble shooting information. After the call is terminated, each switch 1206-1210 that processed the call completes the associated call record. The switches 1206-1210 combine multiple call records into a billing block.

When a switch 1206-1210 fills the billing block, the switch 1206-1210 sends the billing block to a billing center 1218. Thus, the billing center 1218 receives one billing block from each switch 1206-1210 that handled the call, which in this case would be three billing blocks. The billing center 1218 searches each billing block and retrieves the call record associated with the call, thereby retrieving one call record per switch 1206-1210 that handled the call. The billing center 1218 then uses one or more of the retrieved call records to generate a billing entry. The billing center 1218 is also connected to each DAP 1212-1216 to retrieve information regarding a switch 1206-1210 or call record. However, billing in the present invention is increased because the

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hybrid network also contains proxy intelligence.

Figure 13 shows a block diagram of the Network Data Management 1300 in accordance with a preferred embodiment of the present invention. Network Data Management 1300 encompasses the collection of usage data and events for the purpose of network performance and traffic analysis. This data may also be an input to Billing (Rating and Discounting) processes at the Service Management Layer, depending on the service and its architecture.

The process provides sufficient and relevant information to verify compliance/ non-compliance to Service Level Agreements (SLA). The process provides sufficient usage information for rating and billing.

This process ensures that the Network Performance goals are tracked, and that notification is provided when they are not met (threshold exceeded, performance degradation). This also includes thresholds and specific requirements for billing.

This includes information on capacity, utilization, traffic and usage collection. In some cases, changes in traffic conditions may trigger changes to the network for the...  
...determine a status of the hybrid network which in turn, in step 1404, is utilized during management of the hybrid network. Further, in step 1406, billing rates and discounts are determined based on the status of the hybrid network.

In addition to the Network Data Management 1300 generating billing events, the present invention also uses a Customer Interface Management process 132, as shown in Figure 15, to directly interact with customers and translate customer requests and inquiries into appropriate "events" such as, the creation of an order

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or trouble ticket or the adjustment of a bill. This process logs customer contacts, directs inquiries to the appropriate party, and tracks the status to completion. In those cases where customers are given direct... ...customers.

The aim is to provide meaningful and timely customer contact experiences as frequently as the customer requires.

Figure 16 is a flowchart illustrating a Customer Interface Management Process in accordance with a preferred embodiment. First, in step 1600, a service level agreement is received for a hybrid network customer. Next, in step 1602, the service level agreement is stored after which, in step 1604, inquiries are received from network customers reflecting occurrences related to the hybrid network. Thereafter, in step 1606, events are generated based on the customer inquiries and the service level agreement.

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The Network Data Management 1300 and Customer Interface Management process 1500 are used to give information to the Customer Quality of Service Management Process 1302, as shown in Figure 17. The Customer Quality of Service Management Process 1302 encompasses monitoring, managing and reporting of quality of service as defined in Service Descriptions, Service Level Agreements (SLA), and... ...this process are standard (predefined) and exception reports, including; dashboards, performance of a service against an SLA, reports of any developing capacity problems, reports of customer usage patterns, etc, In addition, this process responds to performance inquiries from the customer. For SLA violations, the process supports notifying Problem Handling and for QoS violations, notifying Service Quality Management 1304.

The aim is to provide effective monitoring...a customer-by-customer basis, as required. It also applies

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any discounts agreed to as part of the Ordering Process, for promotional discounts and

charges, and for outages. In addition, the Rating and Discounting Process 1306 applies any rebates due because service level agreements were not met. The aim is... ...the network quality of service violations and, in step 2410, rebates are determined based on the network service level agreement violations. Thereafter, in step 2412, billing data reflecting the usage information, the negotiated discounts, and the rebates is provided to generate a customer invoice.

Utilizing information from the Rating and Discounting Process 1306, the Invoice and Collections Process 1504, as shown in Figure 25, creates correct billing information. This process encompasses sending invoices to customers, processing their payments and performing payment collections. In addition, this process handles customer inquiries about bills, and is responsible to resolve billing problems to the customer's satisfaction. The aim is to provide a correct bill and,, if there is a billing problem, resolve it quickly with appropriate status to the customer. An additional aim is to collect money due the service provider in a professional and... ...26 is a flowchart illustrating an Invoice and Collections Process in accordance with a preferred embodiment. First, in step 2600, customer account inquiries and customer payment information is received by the system. Next, in step 2602, billing data, including discounts due to quality of service violations and rebates due to service level agreement violations, is collected and processed. Thereafter, in step 2604, customer account invoices are created for distribution based on the customer payment information and the billing data.

Mediation and activity tracking are provided by the event logger and event manager. The event logger and event manager feed the rating and billing information for degraded service using the personally customized rules database.

Utilizing an expert system for the tailored capabilities of each customer, the event  
72

driver...present invention. When a customer initiates a use of the hybrid network, the hybrid network, in a first step 2700, transfers the media over the network using IP information to route it to the appropriate destination. The media transferred over the network may be telephony data, image data, or any other... ...Finally, the Invoice and Collections Process 1504,

73

To better understand the invention, it is useful to describe some additional terminology relating to a telecommunication network. A telephone call comes into a switch on a transmission line referred to as the originating port, or trunk. The originating port is one of.... ...into the switch from the same location of origin. This group of ports is the originating trunk group. After processing an incoming call, the switch transmits the call to a destination location, which may be another switch, a local exchange carrier, or a private branch exchange. The call is transmitted over a transmission line referred to as the terminating port, or trunk. Similar to the originating port, the terminating port is one of a group.... ...the same destination. This group of ports is the terminating trunk group.

Contemporary telecommunication networks provide customers with the capability of using the general public network as well as the capability of defining a custom virtual

network (VNet).

With a VNet, a customer defines a private dialing plan, including plan telephone numbers. A VNet customer is not limited to the default telephone... ...three (3) second increments where local switch time represents the time of day at a switch. The timepoint fields are used by the network switches, billing center, and other network subsystems.

Each subsystem, however, may require the time period for a different use and in a different

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A problem also arises when using only local switch time in that there is no accommodation for time changes... ...zone changes.

There is also a need to match all of the call records associated with a specific telephone call. For example, for proper billing and cost control, it is necessary for the billing center to match the

.p

originating switch's call record to the terminating switch's call record. Also, for troubleshooting and security purposes, it may...zero (0) local switch time, or any other time.

Epoch time is only a format and does not dictate that UTC must be used. The billing time and the local switch time may be in UTC or local time, and the local switch time may not necessarily be the same time that is used for billing. Therefore, the switch must keep billing time and local' switch time separate in order to prevent the problems that occur during daylight savings time changes.

#### Network Call Identifier

This embodiment solves... ...call. The NCID is small enough to fit in a 32-word call record, thereby reducing the data throughput and storage. The NOD provides the billing center and other network subsystems with the ability to match originating and terminating call records for a specific telephone call.

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This embodiment relates to...A SER is reserved for special events such as the passage of each hour mark, time changes, system recoveries, and at the end of a billing block. The SER record for i-nat is also described in more detail below.

1 5

Figures 36 and 37 collectively illustrate the logic that a... ...22) digits, including supplemental data, are recorded in the Authorization Code field of the call record. The Authorization Code field indicates a party who gets billed for the call, such as the calling location or a credit card call. If the data entry requires more than twenty-two (22) digits, the switch 1206-1210 records the billing information in an expanded record (ECDR, EPNR, EOSR, EPOSR) 3616.

In a seventh check 3700 on a call 3602, a switch 1206-1210 determines if... ...expanded record (ECDR, EPNR) 3708.

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In an eighth check 3702 on a call 3602, a switch 1206-1210 determines if the time and charges feature was used by an operator. The time and charges feature is typically used in a hotel scenario when a hotel guest makes a telephone call using the operator's assistance and charges the call 3602 to her room. After the call 3602 has completed, the operator informs the hotel guest of the charge, or cost, of the call 3602. If the time and charges feature was used with a call 3602, the switch 1206-1210 records the hotel guest's name and room number in an expanded record (EOSR.... ...stay at the maximum count if the time exceeds the limits.

The switch clock reflects local switch time and is used for all times except billing. Billing information is recorded in epoch time, which in this embodiment is UTC. The Time offset is a number reflecting the switch time relative to the...an Event Qualifier equal to two which identifies that the change was made to the Local Switch Time and Time Offset of the switch.

The billing center uses the SER for its bill processing. The switch proceeds to step 3810 and

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Figure 39 illustrates the control flow for the Change Daylight Savings Time command which is the... ...and exits the command without updating the Local Switch Time and Time Offset.

After the successful completion of a Change Daylight Savings Time Command, the billing records are affected by the new Time Offset. This embodiment allows the epoch time, used as the billing time, to increment normally through the daylight savings time change procedure, and not to be affected by the change of Local Switch Time and Time Offset.

#### Network Call Identifier

An embodiment provides a unique NCID that is assigned to each telephone call that traverses through the telecommunications network. Thus, the NCID is a discrete identifier among all network calls. The NCID is transported and recorded at each switch that is involved with the telephone call.

The originating switch of a telephone call generates...current switch determines if the originating trunk group type is an Integrated Services User Parts Direct Access Line (ISUP DAL) or an Integrated Services Digital Network Primary Rate Interface (ISDN PRI). ISUP is a signaling protocol which allows information to be sent from switch to switch as information parameters. An ISUP DAL is a trunk group that primarily is shared by multiple customers of the network, but can also be dedicated to a single network customer. In contrast, an ISDN PRI is a trunk group that primarily is dedicated to a single network customer, but can also be shared by.... NCID and overwrite the

NCID provided by the customer to ensure that a valid NOD corresponds to the call 3602 and is sent through the network. In step 4108, if

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the current switch is not authorized to create a new NCID for the call 3602, the current switch proceeds to step 4110. In step 4110, the current switch proceeds to step 4418, thereby exiting the switch processing.

A system and method for the switches of a telecommunications network to generate call records for telephone calls using a flexible and expandable record format. Upon receipt of a telephone call, a switch in the network analyzes the telephone call to determine whether the default call record is sufficiently

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large to store call record information pertaining to the telephone call... ...pertaining to the telephone call. After determining which call record to use, the switch generates the default or expanded call record. The switch sends a billing block, comprised of completed call records, to a billing center upon filling an entire billing block.

#### Introduction To A Callback Telephony System in Accordance With A Preferred Embodiment

In today's telephony environment, a caller must contact an operator to...initiated, billing information, and telephone numbers of parties to participate in the call could be captured. Then, based on the information entered, a central or distributed computing facility with access to the hybrid network transmits e-mail in a note to each party required for the call copying the other parties to verify participation and calendar the event. The e...  
...company or organization needs are also enabled and can be tailored to meet the needs of a particular user based on more global information.

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Billing information would also be provided online. A user could enter a pre-arranged billing number or the ability to bill to a credit card or telephone number. If billing to a telephone number, the system treats the call like a collect or third party call to verify billing.

If profile information were predefined for a particular call scenario, then another option would allow an immediate connection of a conference call or single call.... ...of a button, much as speed dialing is performed today except that more than one caller could be joined without intervention of the calling party. Internet callers are supported and an operator can be joined as required.

Before describing this aspect of the present invention, a description of the Internet environment is presented.

#### Internet

The Internet is a method of interconnecting physical networks and a set of conventions for using networks that allow the computers they reach to interact. Physically, the Internet is a huge, global network spanning over 92 countries and comprising 59,000

academic, commercial, government, and military networks, according to the Government Accounting Office (GAO), with these numbers expected... ...has an open nature and is available to everyone, meaning that it attempts to create a network protocol system that is independent of computer or network operating system and architectural differences. As such, TCP/IP protocols are publicly available in standards documents, particularly in Requests for Comments (RFCs). A requirement for Internet connection is TCP/IP, which consists of a large set of data communications protocols, two of which are the Transmission Control Protocol and the Internet Protocol.

The International Telecommunication Union-Telecommunication Standardization Sector ("ITU") has established numerous standards governing protocols and line encoding for  
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ITU G.711 Recommendation for... ...ITU G.722 Recommendation for 7kHz Audio Coding within a 64kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6.3 kbits.

ITU G.728 Recommendation for coding of speech at 16kbit/s using low-delay code excited linear prediction... ...dial-up telephone lines.

ITU T. 120 Transmission Protocols for Multimedia Data.

In addition, several other relevant standards exist including.

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ISDN Integrated Services Digital Network, the digital communication standard for transmission of voice, video and data on a single communications link.

RTP Real-Time Transport Protocol, an Internet Standard Protocol for transmission of real-time data like voice and video over unicast and multicast networks.

EP Internet Protocol, an Internet Standard Protocol for transmission and delivery of data packets on a packet switched network of interconnected computer systems.

PPP Point-to-Point Protocol

MPEG Motion Pictures Expert Group, a standards body under the International Standards Organization(ISO), Recommendations for compression of digital Video and Audio including the bit stream but not the compression algorithms.

SLIP Serial Line Internet Protocol

RSVP Resource Reservation Setup Protocol

UDP User Datagram Protocol

1 5

The popularity of the TCP/IP protocols on the Internet grew rapidly because they met an

important need for worldwide data communication and had several important characteristics that allowed them to meet this need. These... ...switching equipment within the telephone system seeks out a physical path from the originating telephone  
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to the receiver's telephone. A circuit-switched network attempts to form a dedicated connection, or circuit, between these two points by first establishing a circuit from the originating phone  
97

The establishment of... ...prerequisite to the transmission of data for circuit switched networks. After the circuit is in place, the microphone captures analog signals, and the signals are transmitted to the Local Exchange Carrier (LEC) Central Office (CO) in analog form over an analog loop. The analog signal is not converted to digital form... ...the equipment is modem enough to support digital information. In an ISDN embodiment, however, the analog signals are converted to digital at the device and transmitted to the LEC as digital information.

Upon connection, the circuit guarantees that the samples can be delivered and reproduced by maintaining a data path of 64 Kbps (thousand bits per second). This rate is not the rate required to send digitized voice.... ...the 64 Kbps path is maintained from LEC Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized audio. One of these analog local loops typically exists as the "last mile" of each of the telephone.... ...way to gain connection until some other connection terminates. Second, utilization can be low while costs are high. In other words, the calling party is charged for the duration of the call and for all of the time even if no data transmission takes place (i.e. no one speaks). Utilization...a single block may tie up a line for many minutes, rendering message switching useless for interactive traffic.

Packet switched networks, which predominate the computer network industry, divide data into small pieces called packets that are multiplexed onto high capacity internetwork connections. A packet is a block of data with a strict upper limit on block size that carries with it sufficient identification necessary for delivery to its destination. Such packets usually contain several hundred bytes of data and occupy a given transmission line for only a few tens of milliseconds.

Delivery of a larger file via packet switching requires that it be broken into many small packets and sent one at a time from one machine to the other. The network hardware delivers these packets to the specified destination, where the software reassembles them into a single file.

Packet switching is used by virtually all computer interconnections because... ...99 To better understand the Internet, a comparison to the telephone system is helpful. The public switched telephone network was designed with the goal of transmitting human voice, in a more or less recognizable form. Their suitability has been improved for computer-to-computer I/O communications but remains far from optimal. A cable running between two computers can transfer data at speeds in the hundreds of megabits, and

even gigabits per second. A poor error rate at these speeds would be only one error... ...are connected to the individual networks, we can investigate how the networks are connected together to form an internetwork, or an intemet. At this point, internet gateways and internet routers come into play.

In terms of architecture, two given networks are connected by a computer that attaches to both of them. Internet gateways and routers provide those links necessary to send packets between networks and thus make connections possible. Without these links, data communication through the Internet would not be possible, as the infon-nation either would not reach its destination or networks over the intemet.

IP Routers are also computers that... ...as to how to send the data packets it receives to its destination through the use of continually updated routing tables. By analyzing the destination network address of the packets, routers make these decisions. Importantly, a router does not

100

Now, it is useful to take a simplified look at routing.... ...of the area code and the first three digits of the telephone number uniquely specify an end office and help dictate the rate and billing structure.

The two-wire connections between each subscriber's telephone and the end office are called local loops. If a subscriber attached to a given.... ...toll office, then the path will have to be established somewhere higher up in the hierarchy. There are sectional and regional offices that form a network by which the toll offices are connected. The toll, sectional, and regional exchanges communicate with each other via high bandwidth inter-toll trunks. The number...and technology.

The following three developments, each likely to become more prevalent in the near future, serve as an introduction to the technological arena.

Asynchronous Transfer Mode (ATM) is a networking technology using a high-speed, connection-oriented system for both local area and wide area networks. ATM networks require modems... ...can operate at gigabit (trillion bit) per second speeds to handle the traffic from many computers.

Optical fibers (versus copper wires) that provide high data transfer rates, with host-to-ATM switch connections running at 1 00 or 15 5 Mbps (million bits per second).

3) Fixed size cells, each of... ...designed to carry voice, video, and television signals in addition to data. Pure packet switching technology is not conducive to carrying voice transmissions because such transfers demand more stable bandwidth.

Frame relay systems use packet switching techniques, but are more efficient than traditional systems. This efficiency is partly due to the.... ...is an ."international telecommunications standard for transmitting voice, video, and data over digital lines," most commonly running at 64 kilobits per second. The traditional phone network runs

voice at only 4 kilobits per second. To adopt ISDN, an end user or company must upgrade to ISDN terminal equipment, central office hardware... ...now become part of one larger whole with concomitant increases in the level of analysis, testing, scheduling, and training in all disciplines of the ISP.

#### Internet Service Potential

Real-time view of the status of each conference call participant, ANI and an alphanumeric representation to identify each participant entered by the... ...the appendix.

In an alternative embodiment, a conference call without callback leg is enabled. In this, embodiment, a callback customer participates through a Voice Over Network (VON) application utilizing a computer with voice capability, and can initiate a video screen popup on the computer display for manual operator assistance as detailed...element. As with circuitswitched network elements, packet-switched event gathering and interpretation

is typically performed by custom developed software interfaces which communicate directly with the network elements, process raw network events, and sort the events by context prior to storing them. As discussed above, the correlation is preferably provided by a... ...a Fault Management component 4600 in accordance with a preferred embodiment of the present invention, The Fault Management component 4600 records failures and exceptions in network devices (e.g. network routers or UNIX servers) and performs the following operations.

- 1) performs root-cause correlation of the failures and exceptions;
- 2) immediately takes corrective and/or... ...3) stores the information into a Database Component for later analysis by the Reporting Component; and
- 4) allows real time viewing of faults in a network map and network event views.

The Fault Management component 4600 includes the following elements.

UNIX Servers 4602- Any UNIX Server with BMC Patrol clients loaded.

NT Servers 4604 - Any NT Server with BMC Patrol clients loaded.

SNMP Devices 4606 - Any SNMP manageable device.

HP OV Network Node Manager (Collector Component) 4608 - HP OpenView Network Node Manager is one product which performs several functions. In this context it is it is responsible... ...HP OpenView Network Node Manager is one product which performs several functions. In this context it is responsible for maintaining and displaying the node level network map of the network the MNSIS architecture monitors.

HP OV Network Node Manage 4614 - HP OpenView Network Node Manager is one product which performs several functions. In this context it is it is responsible for receiving and displaying all events, regardless of their source.

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Netcool HP OV NNM Probe 4616 - An Omnibus Netcool probe which is installed on the same system as HP OV Network Node Manager and forwards events to the Omnibus Netcool Object Server.

Micromuse Internet Service Monitors 4618- An Omnibus Netcool suite of active probes (monitors) which monitor internet services such as FTP, POP3, SMTP, NNTP, DNS, HTTP, and RADIUS. These monitors collect availability and performance data and forward the information as alerts ...to provide universal information access by an object request broker. The object request broker allows the Information Services Manager to share management information stored in distributed databases. The Proactive Threshold Manager uses the information provided by the Information Services Manger to determine a current level of service and compare the current... ...databases also provide procedures, policies and computer based training to network users.

The information services manager provides requested information (real-time and historical) to the network users via the presentation manager.

#### Presentation Manager

The presentation manager performs the function its name implies: the presentation of the information to an end user.... ...Management Aspect of the present invention works in conjunction with other components of the system, such as Fault Management, to provide communication between the various network elements of the system, Figure 49 is a flowchart showing an Element Management Process 4900 in accordance with a preferred embodiment of the present invention...correlated events into standard object format. Once the events are translated, they are ready for use by other system components, such as Fault Management or Billing.

#### Customer Support Structure

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The organization model for customer service support in the NGN network provides a single point of contact that is customer focused...the Internet can be ided. Once the "free" on-line help service time or time period is up, the Internet Entry Server provi prompts the user with one or more of a plurality of options for extending the availability of online help. For example, the user can be prompted to enter a credit card number to which on-line help charges can be charged; he or she can be given the opportunity to answer additional survey information in return for additional "free" on-line help; or a 900 subscriber paid telephone access number can be provided through which additional on-line help will be billed via the normal telephone company 900 billing cycles.

#### Integrated IP Telephony User Interface

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One embodiment of the present invention allows a user of a web application to

communicate in an audio...by the fact that the data often 'des in multiple databases, each database having different internal file structures.

resi

Rarely is the relevant information explicitly stored in the databases. Rather, the important 1 5 information exists only in the hidden relationships among items in the databases. Recently, artificial intelligence techniques have...services component 5310, or a web customer service component 5312.

The present invention provides a new kind of web architecture framework (called "WAY" in this document) that secures, administers, and audits electronic infori-nation use. WAF also features fundamentally important capabilities for managing content that travels "across" the "information

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highway." These capabilities comprise a nights protection solution that serves all electronic community members. These members include content creators and distributors, financial service providers, end-users, and others. WAF is the first general purpose, configurable, transaction control/rights protection solution for users of computers, other electronic appliances, networks, and the information highway.

The Internet is a method of interconnecting physical networks and a set of conventions for using networks that allow the computers they reach to interact. Physically, the...way to gain connection until some other connection terminates. Second, utilization can be low while costs are high. In other words, the calling party is charged for the duration of the call and for all of the time even if no data transmission takes place (i.e. no one speaks). Utilization...concatenation of the area code and the first three digits of the telephone number uniquely specify an end office and help dictate the rate and billing structure.

The two-wire connections between each subscriber's telephone and the end office are called local loops. If a subscriber attached to a given trunks. The number of different kinds of switching centers and their specific topology varies from country to country, depending on its telephone density.

#### Using Network Level Communication for Smooth User Connection

In addition to the data transfer ftinctionality of the Internet, TCP/IP also seeks to convince users that the... ...network. The machines outside of the network do not participate in these internal routing decisions.

At this stage, a distinction should be made between direct delivery and indirect delivery. Direct delivery is the transmission of a datagram from one machine across a single physical network to 1 5 another machine on the same physical network. Such deliveries do not involve routers. Instead, the sender encapsulates the datagram in a physical frame, addresses it, and then sends the frame directly to the destination machine.

Indirect delivery is necessary when more than one physical network is involved, in particular when a machine on one network wishes to communicate with a machine on

another network.

This type of communication is what we think of when we speak of routing information across the Internet backbone. In indirect delivery, routers are required. To send a datagram, the sender, must identify a router to which the datagram can be sent, and...  
...widely to accommodate these high bandwidth services.

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WAF supports a general purpose foundation for secure transaction management, including usage control, auditing, reporting, and/or payment. This general purpose foundation is called "WAF Functions" ("WAFFs"). WAF also supports a collection of "atomic" application elements (e.g., load modules) that can be...with capability parameter data to reflect the elements of one or more express electronic agreements between WAF participants in regards to the use of electronic content such as commercially distributed products. These control capabilities manage the use of, and/or auditing of use of, electronic content , as well as reporting information based upon content use, and any payment for said use. WAFF capabilities may Ifevolve" to reflect the requirements of one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given content model (such as distribution of entertainment on CD-ROM, content delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would be able to securely select from amongst available, alternative control... ...information related to the use of the object's content. A creating party may make a WAF container available to other parties. Control infort-nation delivered by, and/or otherwise available for use with, WAF content containers comprise (for commercial content distribution purposes) WAFF control capabilities (and any associated parameter data... ...during the registration process for a content distribution application, to be used by such installation for securely controlling WAF content usage, auditing, reporting and/or payment. Similarly, a specific WAF participant may enter into a WAF user agreement with a WAF content or 1 5 electronic appliance provider when the user... ...require certain one or more load modules execute as processes at an appropriate time to ensure that such credit will be used in order to pay for user use of the content. A certain content provider might, for example, require metering the number of copies made for distribution ...the presence of a WAF installation to run). This would require the execution of a metering method for copying of the property each time a copy was made for another employee. This same provider might also charge fees based on the total number of different properties licensed from them by the user and a metering history of their licensing of properties might... ...models, content control models, and content usage information pathways,

- (2) a complete range of electronic media and distribution means,
- (3) a broad range of pricing, payment, and auditing strategies,
- (4) very flexible privacy and/or reporting models,
- (5) practical and effective security architectures, and
- (6) other administrative procedures that together with... ...of users related to information regarding their usage of electronic information and/or appliances,

- (2) societal policy such as laws that protect rights of content users or require the collection of taxes derived from electronic transaction revenue, and
- (3) the proprietary and/or other rights of parties related to ownership of, distribution of, and/or other commercial rights related to, electronic information.

WAF can support "real" commerce in an electronic form, that is the progressive creation of commercial relationships that form, over time, a network of interrelated agreements representing a value chain business model. This is achieved in part by enabling content control information to develop through the interaction of (negotiation between) securely created and independently submitted sets of content and/or appliance control information. Different sets of content and/or appliance control information can be submitted by different parties in an electronic business value chain enabled by the present invention.

These parties create control information sets through the use of their respective WAF installations. Independently, securely deliverable, component based control information allows efficient interaction among control information sets supplied by different parties.

WAF permits multiple, separate electronic arrangements to be formed between... ...allows such constituent electronic agreements, and therefore overall WAF extended agreements, to evolve and reshape over time as additional

WAF participants become involved in WAF content and/or appliance control information handling. WAF electronic agreements may also be extended as new control information is submitted ...appliance use, and/or they may include "static" electronic assertions, such as an end-user using the system to assert his or her agreement to pay for services, not to pass to unauthorized parties electronic information derived from usage of content or systems, and/or agreeing to observe copyright laws. Not only can electronically reported transaction related information be trusted under the present invention, but payment may be automated by the passing of payment tokens through a pathway of payment

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(which may or may not be the same as a pathway for reporting). Such payment can be contained within a WAF container created automatically by a WAF installation in response to control information (located, in the preferred embodiment, in one... ...WAF's usage control information, for example, provide for property content and/or appliance related: usage authorization, usage auditing (which may include audit reduction), usage billing, usage payment, privacy filtering, reporting, and security related communication and encryption techniques.

WAF's fundamental configurability will allow a broad range of competitive electronic commerce business models to...of items should be easily accessible throughout the display catalog, such as through links.

Optionally, multiple languages may be incorporated into the present invention and

payment for the predetermined set of items may be accepted in any one of a plurality of currencies such as electronic and foreign.

Recently, an online...basket. During the shopping, he or she examines the content of the shopping basket as required to check the item scheduled to purchase and the pay amount of the items. Accordingly, it is not necessary to always display the purchase list on the screen, but the functions to access to the... ...purpose of the pending sale, customer's shopping habits, etc. Such information may be input directly by the user, captured as a user uses the network, and may be downloaded periodically from a user's system. Next, in operation 5601, a plurality of items for purchase are displayed, from which the customer is allowed to select multiple, similar items, i.e. products or services to compare in 15...5904. If no keywords match, the user's words could be analyzed using a thesaurus to find keyword 15 matches in operation 5906. A payment is then accepted in exchange for the solution in operation 5810 of Figure 58, as will be discussed in more detail below. It should be.... availability may be determined with respect to the selected items and the selected features thereof for display purposes in operation 6006. Further, in operation 6008, payment is accepted in exchange for the selected items and the selected features thereof. It should be noted that in the foregoing description, the items each...application logic or presentation,

Another company, Open Market, is developing a similar electronic catalog system consisting of a HyperText Markup Language (HTML) authoring tool (called Storebuilder), and a server (called WebServer) connected to an integrated back-end commerce system (called TransactionLink). This system appears to share similar characteristics and disadvantages as the Netscape system, Any of the foregoing types of browsers may employed to access various databases via the Internet in order to conduct electronic commerce-related business.

Typical database or file-based shopping cart systems require that the user be uniquely identified in order to associate particular data stored on the server with a particular user. This requires the user to log-in or create an account, which is 25@ then stored in the server. Each subsequent request from the user must reference the unique identifier, either in the uniform resource locator (URL) or as hidden data passed back through a form submission. Either of these... ...data processing center, to take orders for goods or services from customers and transmit them for processing to the central data processing center, to accept payment, and to deliver goods or services in the form of documents to the customer when orders are completed.

The central data processing center is also.... trip or  
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vacation which is periodically updated via a communication link with the remote control center. The self-service terminal normally operates off-line.

Payment for items purchased over the Internet is also a concern. Today, approximately 350 billion coin and currency transactions occur between individuals and institutions every year. The extensive use of coin and currency transactions has limited the automation of individual...which are used primarily by large

commercial organizations.

The Automated Clearing House ("ACH") where a user can enter a preauthorized code and download information with billing occurring later, and a Point Of Sale (POS) system where a transaction is processed by connecting with

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a central computer for authorization for the transaction granted or denied immediately are examples of EFT systems that are utilized by retail and commercial organizations.

Home Banking bill payment services are examples of an EFT system used by individuals to make payments from a home computer. Currently, home banking initiatives have found few customers.... ...a trend towards off-line payments. For example, numerous ideas have been proposed for some form of "electronic money" that can be used in cashless payment transactions as alternatives to the traditional currency and check types of payment systems,

The more well known techniques include magnetic stripe cards purchased for a given amount and from which a prepaid value can be deducted for.... ...for specific purposes.

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It is desirable for a computer operated under the control of a merchant to obtain information offered by a customer and transmitted by a computer operating under the control of the customer over a publicly accessible packet-switched network (e.g., the Internet) to the computer operating under the control of the merchant, without risking the exposure of the information to interception by third parties that have access to the network, and to assure that the information is from an authentic source. It is further desirable for the merchant to transmit information, including a subset of the information provided by the customer, over such a network to a payment gateway computer system that is designated, by a bank or other financial institution that has the responsibility of providing payment on behalf of the customer, to authorize a commercial transaction on behalf of such a financial institution, without the risk of exposing that information to interception by third parties. Such institutions include, for example, financial institutions offering credit or debit card services.

Such secure payment technologies include Secure Transaction Technology ("STT"), Secure Electronic Payments Protocol ("SEPP"), Internet Keyed Payments ('WP'), Net Trust, and Cybersafe Credit Payment Protocol. One of ordinary skill in the art readily comprehends that any of the secure payment technologies can be substituted for the SET protocol without undue experimentation. Such secure payment technologies require the customer to operate software that is compliant with the secure payment technology, interacting with third-party certification authorities, thereby allowing the customer to transmit encoded information to a merchant, some of which may be decoded by the merchant, and some which can be decoded only by a payment gateway specified by the customer,

Another such attempt to provide such a secure transmission channel is a generalpurpose secure communication protocol such as Netscape, Inc... ...connection supports only a two-computer connection. Therefore, SSL does not provide a mechanism for transmitting encoded information to a merchant for retransmission to a payment gateway such that a subset of the information is readable to the payment gateway but not to the merchant. Although SSL allows for robustly secure two-party data transmission, ...comprehends that any of the general-purpose secure communication protocols can be substituted for the SSL transmission protocol without undue experimentation.

Banks desire an Internet payment solution that emulates existing Point of Sale (POS) applications that are currently installed on their host computers, and require minimal changes to their host systems. This is a critical requirement since any downtime for a banks host computer system represents an enormous expense. Currently, VeriFone supports over fourteen hundred different payment-related applications. The large number of applications is necessary to accommodate a wide variety of host message formats, diverse methods for  
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communicating to a variety of hosts with different dial-up and direct-connect schemes, and different certification around the world. In addition, there are a wide variety of business processes that dictate how a Point of Sale (POS) terminal queries a... ...utilizing the bank's proprietary protocol, and by providing other value-added services that a merchant may not be able to obtain at another bank.

Internet-based payment solutions require additional security measures that are not found in conventional POS terminals. This additional requirement is necessitated because Internet communication is done over publicly-accessible, unsecured communication line in stark contrast to the private, secure, dedicated phone or leased line service utilized between a traditional merchant and an acquiring bank. Thus, it is critical that any solution utilizing the Internet for a communication backbone, employ some form of cryptography.

As discussed above, the current state-of-the-art in Internet based payment processing is a protocol referred to as SET. Since the SET messages are uniform across all implementations, banks cannot differentiate themselves in any reasonable way... ...and thus cannot easily develop and maintain an online presence.

One way a company can contact millions of potential customers is to use the global Internet. The global Internet is a network of computer networks that links together millions of computer systems using the well defined TCP/IP protocol.

A new method of distributing and viewing information known as the WorldWide Web has recently become very popular on the global Internet. The WorldWide Web is a collection of servers connected to the Internet that provide multimedia information to users that request the information, The users access the information using client programs called "browsers" to display the multi-media information.

World-Wide Web servers store multi-media information in a document format known as HyperText Markup Language (HTML). The World-Wide Web servers distribute the HTML formatted documents using a specific communication protocol known as the HyperText Transfer Protocol (HTTP).

To access the multi-media information available on World-Wide Web servers, a user runs a client browser program that accesses the HTML formatted documents stored on the HTTP servers connected to the global Internet. The client browser program retrieves the formatted information and provides the information in an appropriate manner to the user. For example, the client browser program... ...samples using the speakers on the user's computer system. "Mosaic", one popular client browser program, is widely available to the users of the global Internet.

For a company that wishes to develop an online presence, creating a World-Wide Web Server would provide a feature rich online service available to...World-Wide Web Servers can be implemented on relatively simple computer systems, including personal computers.

Most World-Wide Web Servers are coupled to the global Internet. By deploying a World-Wide Web Server on the global Internet a company would create online service that is accessible to the millions of global Internet users, Alternatively, a company can deploy a HTTP server that is available to customers through dial-up phone service. A dial-up HTTP server would be  
160 accessible to customers and clients that do not have Internet access, Thus, by creating a simple HTTP server, any organization or corporation can create an online presence.

However, quickly creating the HTML formatted documents required... ...iv) discussion groups.

The ability to perform commercial transactions that involve order entry systems transactions can be carried out simply by logging onto a computer network.

Four different types of commercial transactions might commonly occur in a commercial online service. First, a user may be charged for the right to access... ...the user for performing some type of action such as winning a contest or completing a marketing survey. Third, an online service may charge a content provider for placing certain information on the online service. For example, a content provider can be charged for placing an advertisement on the online service. Finally, a content provider can be paid by the online service for providing information that users may wish to access, can be can be provided on a for-fee basis. Conversely, an online service provider may wish to pay third party content providers for placing useful material on the online service.

Thus, when creating a publicly accessible online system, it is desirable to include the ability to... ...time, or according to the premium paid by the advertiser. A user is

permitted to select the items for purchase, as indicated by operation 6104. Payment is then accepted in exchange for the selected items in operation 6105. While the virtual shopping environment is being used, advertisement information may be displayed... ...to the user based on the profile of the user. This is particularly useful where the advertisements are being rotated. Then the advertiser would be billed based upon the number of times its advertisement was shown Note that the items each include ...cross-selling, up-selling, advertisements, and promotions are linked to pages containing greater detail or to a purchasing area.

The use of advertising revenues to pay for information dissemination is well established in domains such as television and radio in which end users are tuned to a continuous signal over a... ...listen to a program or to otherwise receive information. Furthermore, in virtually all such systems or media, the juxtaposition or placement of advertisements and information content is explicitly programmed or determined by human beings working as "editors" or in a similar content and/or presentation editing capacity.

Distributing information via the Internet or other publicly accessible computer communication networks has been largely unsupported by advertising revenues due to the lack of good mechanisms for mixing advertising and information content in such a way as to be acceptable to both end users and advertisers.

There are, of course, some exceptions where advertising/content mixtures from other contexts, such as newspapers and television, have been simply replicated on the Internet. For instance, some newspapers have been "published" at least in part on the Internet, and include advertisements along with information content.

In fact, some newspapers sell advertising space on an associated World Wide Web (WWW) site, which often includes.... ...Further, the user is allowed to select the items for purchase in operation 6308. Factors that are tailored include price and availability of the items. Payment is then accepted in exchange for the selected items in operation 6310, as discussed in more detail below.

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The virtual shopping environment may be...pricing is controlled by the stock market.

The current wide-ranging use of computer systems provides a relatively large potential market to providers of electronic content or information. These providers may include, for example, advertisers and other information

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publishers such as newspaper and magazine publishers. A cost, however is involved... ...information in the servers current.

One source which can be accessed to provide the monetary resources necessary to establish and maintain such an electronic information network is the individual end users which consume the electronic information. This electronic

information, however, has different value to different users. For example, some users will... ...advertisements, cognizant of the fact that consuming these advertisements will subsidize their electronic content consumption fees,

#### ORDERREPLACEMENT

Collects user information for order processing (shipping, billing)

Recaps order for confirmation (shipping, price, availability)

Allows for order maintenance (qty, product, shipping)

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Referring to operation 5414 of Figure 54, another embodiment of... ...receives an order for at least one of the products and services. User information- is collected for order processing, including an address for delivery and billing. In the alternative, a user may enter an alphanumeric code representative of a source of currency, such as a credit card number or bank account...such as by taking into account handling costs, the total weight of the items, the distance to final destination of the items, and the corresponding charges of the shipping provider. An estimate of the delivery date may also be given. It should be noted that mileage and the like could be... ...of the invention processes transactions pertinent to the purchase of items. For example, credit card transactions are processed, as are purchase order transactions. A structured payment plan may also be created.

The actual order is placed with a fulfillment house for physical shipping of a product, or the order is placed...allows the vendor to prohibit unauthorized usage of the software that might facilitate unauthorized copying. In addition, licensing provides an advantageous method of providing and billing for software. Through licensing, the vendor may sell several identical copies of the same software and charge the buyer for each copy .

Licensing schemes have adapted to the network environment as well as the individual personal computer. In a network environment, such as a client-server network, multiple users may access the same copy of a particular application. Consequently, the vendor can charge the network owner not for the number of copies installed on the network, but for the number of users having access to the software.

Software... ...controlling access to software on a network.

Electronic licensing typically comprises providing a set of criteria under which a request for an application from the server should be granted. One licensing system uses a fixed set of licenses controlled by a license server. The license information is maintained in a license database, along with information regarding which applications are in use and how many units are still available.

The information in the database may be encrypted to prevent forgeries. When an application is desired, the application commences running. Code embedded in the application initially requests... ...individual servers provide resources at the client's request. To facilitate such licensing, the application typically includes a library of programs designed to contact the server, request a license, and track the resulting license.

When a call is made to a server , all of the execution occurs on each individual server for any particular call. Similarly, if a license is located on a particular machine, all execution necessary to operate on that license occurs on that machine. Consequently, a central server containing most of the licenses available on a particular network is mainly responsible for maintaining the licenses.

In addition, conventional licensing systems rely on code embedded in the application to establish the licensing attributes. Code is placed in the application which interprets information received from the server to establish licensing parameters. Because the behavior of the license is not established until after the request has been made and the license obtained, the...lack of accountability.

As computers have proliferated in availability, the investment in computer software has also grown, and there have been developed various methods for charging the computer user for use of computer software products. Typically computer software products are licensed, rather than sold, to the computer user under various arrangements.... ...are for indefinite periods of time, a license may also be for a limited duration and extendable, so that the entity marketing the product can charge a periodic fee (for example, annually) for use of the software product. Or use may be absolutely time-limited (for example, one-day), so that.... ...together over a data path), additional licensing challenges are present. For example, a network may permit a user at one node (which may be a terminal or workstation, for instance) to utilize a software product running at another node (which may be the network server or even another workstation).

Consequently, the terms of the single-computer type of software license might not cover.... worse still (from the point of view of the licensor) might actually permit such a usage without additional compensation to the licensor. One approach to network licensing is to grant permission to use the program based on all of the nodes on the network, and to require a license for each node. Then typically the license fee may be increased as the number of nodes on the network increases. Another approach bases the license fee for a software product running on a network on the total number of individual users who might actually run the software, regardless of the number of nodes either on the network or running the software product at a given time. These approaches, however, have usually required the cooperation of the licensee, because additional nodes may be added to the network, or additional users may utilize the software, without the knowledge of the licensor, who is typically not present on the premises of the licensee. The.... site, but such an audit is intrusive, expensive, and may alienate potential or actual customers for licenses. Although other approaches exist under which one might charge a single fee per server or per site or per entity, often on an individually negotiated basis, these approaches are often impractical or inflexible, in.... wide variation over time in the number of nodes or users and also require reliance on licensee cooperation.

Recently it has become practical in some network environments to determine and limit the number of nodes that may access a software product at a given time,

and to charge a license fee based on the maximum number of nodes that are permitted to use the software product concurrently.

This is called "concurrent licensing". In these environments, a computer program, acting as "librarian" and running on a computer node designated as a license server, is typically used to distribute license keys (sometimes called "tokens") over the network to nodes requesting access to run a software product; the number of keys is tracked by the librarian; and if at a given time, the... ...rights protection for, electronic agreements implemented through the use of the present invention. Such agreements may involve one or more of(1) creators, publishers, and other distributors, of electronic information,

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(2) financial service (e.g. credit) providers,  
(3) users of (other than financial service providers) information arising from content usage such as content specific demographic information and user specific descriptive information. Such users may include market analysts, marketing list compilers for direct and directed marketing,  
and government agencies,  
(4) end users of content,  
(5) infrastructure service and device providers such as telecommunication companies and hardware manufacturers (semiconductor and electronic appliance and/or other computer system manufacturers) who receive... ...to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,  
(2) content use control, including electronic distribution ,  
(3) privacy (regarding, for example, information concerning parties described by medical, credit, tax, personal, and/or of other forms of confidential information),  
(4) management of financial processes, and  
(5) pathways of handling for electronic content, content and/or appliance control information, electronic content and/or appliance usage information and payment and/or credit.

WAF agreements may define the electronic commerce relationship of two or more parties of a value chain, but such agreements may, at...pathways (chains) for: the handling of content, content and/or appliance control information, reporting of content and/or appliance usage related infori-nation, and/or payment, (3) supporting an evolution of terms and conditions incorporated into content control

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(4) support the combination of multiple pieces of content to form new... ...displaying the result. Further, the status of an invoice may be checked in real time for, for example, permitting a user to determine whether a payment has been received and the like.

Any problems encountered relating to the order or shipping of the order are result in proactive notification of the... ...and having a July 1996 issue date is indistinguishable

from other 30-year treasures having the same properties. Accordingly, the price buyers are willing to pay and sellers willing to accept defines the market price of all 30-year treasury bonds of that same vintage, allowing a source transparent application of open... ...by the United States Government are known as U.S.

Treasuries. These instruments typically span maturity terms at issue of 13 to 52 weeks (T-bills), one to ten years (notes), and up to 30 years (bonds). The T-bills are pure discount securities having no coupons. Almost all other treasures having longer terms are coupon notes or bonds, with a defined payment cycle of semi-annual payments to the holder.

Treasuries have characteristic properties that make them especially useful for the purpose of the present invention and...of following transactions. To properly track activity, a trade generates a (virtual and/or real) single trade ticket--with associated, and screen-displayed, reference number.

#### CONTENT CHANNEL-RELATED WEB APPLICATION SERVICES

As illustrated in Figure 53 and denoted by reference numeral 5302, another embodiment of the present invention is provided for affording a combination of content channel-related web application services. More detail is given in Figure 66. Various features are included such as downloading data in operation 6600 and transmitting data, such as push-technology data, based on user specifications in operation 6602. In operation 6604, a plurality of newsgroups are also provided to which users may subscribe. Content subscriptions are also available. Answers are provided to frequently asked questions (FAQ's) relating to the content -related web application services. See operation 6606. Further, in operation 6608, real time communications are enabled between a plurality of users. In use, the transmission... ...If an error occurs during downloading, the download 1 5 is restarted. These features greatly facilitate transactional dependent downloads.

#### PUSH TECHNOLOGY CAPABILITIES

Sends messages or content to customers proactively

Allows for delivery and receipt of custom applications developed in all major languages-(i.e.

.Visual Basic, C++, Java)

Receives, installs, and launches applications automatically without user intervention

Utilizes plug-ins allowing developers to personalize applications and content

Performs informal hardware and software audits

Delivers self-updating applications

Referring to operation 6602 of Figure 66, push-technology data is transmitted based on user specifications. Preselected messages and content may be sent to customers proactively.

Furthermore, applications could be received, installed, and launched automatically without user intervention. For example, a software update could be... ...user's computer and installed immediately when it becomes available. Also, informal hardware and software audits could be performed automatically or at predetermined intervals.

Ideally, delivery and receipt of applications developed in a variety of programming languages, such as VISUAL BASIC, C++, and JAVA, is allowed. Plug-ins may also be utilized to allow developers to personalize applications and content.

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#### DISCUSSION FORUMS AND NEWSGROUPS

Securely handles all media types (e.g. graphics, audio, etc.)

Links to web pages for easy access to published documents...Notifies users if another user is on-line

Provides free forum discussion area

Allows for moderated chat sessions

Chat capabilities could be included in the content channels component of the present invention.

Note operation 6608 of Figure 66. Such capabilities would permit collaborative web touring and URL pasting, for such things... ...tracks outbound messages

Automates regular communication triggered by events

Tracks email responses for campaign management statistics

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In operation 6610, shown in Figure 66, the content channels component of the present invention also permits generation of messages which may be sent to selected users at predetermined times or automatically upon occurrence... ...Other messages would be queued in mailboxes for response. All or selected messages may be stored to build a customer interaction history.

#### DYNAMIC RENDERING

Displays content and applications based on profile

Pulls content from multiple data sources: static, database, third party site

Matches content to users via configurable business rules

Allows custom template based publishing

The content channels component of the present invention also provides for generic and custom... ...are provided, as are forms to enter resources.

Also listed are interview times and locations as well as campus recruiting dates. Resumes are accepted and stored to be later accessed by potential employers, or are routed to an appropriate destination. The resumes may be sorted based on keyword search or area...provided to each user based on profile data of that user in operation 6704. Further, static and dynamic information of interest is provided to a plurality of users having similar profile data in operation 6704. Information is also located on a network of databases, i.e. the Internet, as a function... ...level, stated profession, etc. as well as preferences of the user. Figure 23B illustrates one method for developing a user profile. In operation 6900, user information such as search requests, shopping events, and browsing habits may be collected by the system or by the user's computer for

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6803.

For... website, it would highlight first the software and hardware performance/requirements specs and next the return on investment. At a higher level, with the same customer, if he were searching for a word processor software, then the profile would present a review of the best software for accounting firms as written... ...or business needs Provides dynamic content and applications to people with similar preferences or business needs

Communities can be created by configurable business rules

The customer relationship management component of the present invention, in operation 6702, provides static content and applications to people with similar preferences and business needs. Dynamic content...

Claims:

#### ...NETWORK

Figure 11111130el 1208120012 21 1 1 1121012141206 Iwww TEI1202 21lb.

1216<B>BILLING</B>TELEPHONE CENTERFigure 12INPUTS OUTPUTSe rmance Customer QoS 6par'0 ..... gamentdta1304 4usage 10.1300 informationservice Qi ality ervice... ...determine astatus of the hybrid networkI F1406Utilizing the status of the hybridnetwork during management of thehybrid network156Determining <B>billing</B> rates anddiscounts based on the status ofthe hybrid networkFigure 1414/130.. .... .MF@ -@-)rlojiarnrses to CustomerEnd-Customer ordersProcessesSales inquiry... ...ustomer nterfaceProblems ManaggmentInquiries Orders No Receive and record contact Orders OrdeOrders rPayments Direct inquiries to appropriate Handling 1502Procurement processesImplementation <B>Billing</B> inquiry Monitor and control status of Problem&amp; Maintenanceinquiries, and escalate Frouble reporti,handlingPerformance Trouble report 1302(QoS &amp; SLA) Ensure a consistent imageMonitoring Perfo and secure use of temsFinance and compla Peilling rformance 1504Planning and Other inquiries complaintsDesign <B>Billing</B> inquiry<B>Payment</B> ,Provider Collecticnsi Customer care ResponsestoI - Mkt. ResearchProcesses i inquirieslorders Feedback/InputFigure 15151130Receiving a service levelagreement for a hybrid...Figure 2222/130INPUTS OUTPUTS1306Order Customer recorddetails, discountsHandlingService 1504Planning/ Service pricesDevelopment a ng/Discounting er prov er<B>Billing</B> records1502 Apply service rates to usage nvo c ngProblem SLA Apply negotiated discounts CollectionHandling OGS Apply rebates13041300 ther provider erv.... ...service violations 2408Mal=Applying rebates based on thenetwork service level agreement 2410violationsW 1=1 MMEMMU =1 IRON I 111 0Providing <B>billing</B> data reflecting the2412usage information, the negotiateddiscounts, and the rebates, the<B>billing</B> data being suitable forgenerating a customer invoiceEMSEMBURINKIEEMMMMFigure 2424/130INPUTS 1504 OUTPUTSus mer Payments InvoicesCustomer1500 1500us mer.... ...Inquiries inquiry Cus merInterfaceI nvoicinglCollections Resolution ManagementCreate, delete Create and distribute invoicescustomer acct Collect paymentsEstablish Handle customer account Treasurydesired <B>bill</B> date inquiries Accounts and other-- -' - ll@Debt

Management1506 Activate <B>billing</B> payable, Financiala leceivV <B>Bill</B> on behalf of other providers jrpeceivable Functions(not covered)recordsFigure 2525/130Receiving customer accountinquiries and customer <B>payment</B>informationIFCollecting <B>billing</B> data, the <B>billing</B> 26 0-22data including discounts due toquality of service violations, andrebates due to service levelagreement violationsI F2604Creating customer accountinvoices for distribution, whereinthe customer account invoices arebased on the customer <B>payment</B>information and the <B>billing</B> dataFigure 2626/130Provide transfer of media over thehybrid network utilizing IPinformation to route the media2702Generate an event based on QoS ofthe media transfer2704utilize the event to <B>bill</B> for servicesprovided via the hybrid networkFigure 2727/130206 28C2801R2804MAIN4 MEMORY 2806SECONDARYMEMORYBUS2808HARD... ...3616 361USE ECDR, EPNR EOSR, USE CDR PNR OSREPOSR RE60RD PORMAT POSIZ khC6Vb'FORMATFigure 363602 CALL3702 37043700ME AND<B>CHARGE</B> FEATUDEBANUSED BY CCALL OPERATOR?NO NON 0 YESIFUSE CDR PNR USE ECDR/EPNR USE OSR, POSR USE EOSRJERECORD...zvStorage :jon 3ra calyDirectory Services Management Operations WIV dation, Managemen - - - - - conriguration F-W-e=pp I&ahcra ManaCame & Stom Administ-deAuditiN FAuditing & <B>Billing</B> for] Manage entSt ge of Base ProfitData 1.1 Community & Role De nr1joNotworkrottiject De Usiage - (Criarge-back)i Man gernerit (scr 0r... ...REVIEWING AVAILABLE PRODUCTS580@5806GENERATIN'; AT LEAST ONE RECOMMENDED SOLUTION BASED ON THE USERREQUIREMENTSDISPLAYING THE AT LEAST ONE RECOMMENDED SOLUTION58ofACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE AT LEAST ONE SOLUTIONFigure 58581058/130PREASSOCIATING, ITEMS WITH KEYWORD5902SELECTING ITEMS BASED ON KEYWORD TAKEN FROM... ...PURCHASED 6004I F6006DETERMINING A PRICE AND AVAILABILITY OF THE SELECTED ITEMS AND THESELECTED FEATURES THEREOF AND DISPLAYING THE SAMEFACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE SELECTED ITEMS AND THESELECTED FEATURES THEREOF 60MFigure 6060/130DISPLAYING A PLURALITY OF ITEMS FOR PURCHASE6102DISPLAYING... ...WHICH RELATES TO AT LEAST ONE OFTHE ITEMS DISPLAYED FOR PURCHASE6103AL.OWING A USER TO SELECT THE ITEMS FOR PURCHASE6104ACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE SELECTED ITEMS6106Figure 6161/130PREASSOCIATING ADVERTISEMENTS WITH INDIVIDUAL ITEMS OR WITHENTIRE CLASSES OF ITEMSAUTOMATICALLY DISPLAYING ONE... ...PROFILE 6306306JDISPLAYING THE AT LEAST ONE ITEM FOR PURCHASEALLOWING THE USER TO SELECT THE AT LEAST ONE ITEM FOR PURCHASE6308ACCEPTING <B>PAYMENT</B> IN EXCHA NGE FOR THE SELECTED ITEMFigure 63 631063/130ALLOWING A USER TO REQUEST TO ...IN A SYSTEM8402ANALYZING DATA FROM LOG FILES IN THE SYSTEMMANAGING RULES AND POLICIES IN THE SYSTEMAUDITING USAGE IN THE SYSTEM 8406 <B>BILLING</B> FOR THE USAGE IN THE SYSTEM 840MONITORING PERFORMANCE IN THE SYSTEM8410MANAGING

COMMUNITIES OF USERS IN THE SYSTEM 8412PROVIDING BACKUP CAPABILITIES IN...DISCOUNTS, TAXES, FULFILLMENT COSTS AND DELIVERY COSTS10708ALLOWING SAVE AND RECALL OF THE PRODUCT AND PRICE OF THE ORDER10710DETERMINING A METHOD OF  
<B>PAYMENT</B> 10712RECEIVING THE  
<B>PAYMENT</B>10714FULFILLING THE ORDERFigure 10798/130Merchandise Check Out <B>Payment</B> FulfillmentSelection0600 10602 10604 10606Figure 10610800 10802Browse & eec s rInteract ercha merc aniseNYes..Price negotiation Check-out<B>Payment</B>authorization Integrity checkWarehouseStatus updatemodification10804Settlement FulfillmentFigure 10899/1301 02PROVIDING AN ABILITY TO SEARCH FOR INFORMATION ON THE...Ap nDatabaseElectronic Commerce LAN Packet filte@Fo ment Stag ngr Servern meFulfillment Dial-upAdmin n Systems cy Merchant <B>Payment</B> ServiiDatabase LAN NetworkFigure 12112206 U202sHardened OS \*Hardened OS Hard OS; \*Hardened OSDM.DMCerti ica e7 DatabaseRA Authority Server.... ...130116/130RECEIVING NOTIFICATION OF AN AGREEMENT TO SELL UNUSED 13100BANDWIDTH FOR AN AMOUNT OF MONEY13102RECEIVING INFORMATION CONCERNING THE MANNER OF<B>PAYMENT</B>I rVERIFYING THE TRANSFER OF THE AMOUNT OF MONEY 13104REALLOCATING THE UNUSED BANDWIDTH OF THE FIRST USER 13106TO THE SECOND USERFigure...BWTH) r14008--,,INTERACTIVE TERMINAL 14014COMMUNICATIONC::EX@IT@@@14010-,,,REPROCE S FILE FOR ANY NEWLYEXECUTABLE ORDERSFigure 140126/13014102 14104<B>BILL</B> 14120 14132ME 14124 14126 Bc1412141314136AR14110 DATACKBOX NSF14128 NOTICE1413414106 14134BANK C BANK BB... ...CHECK\$\$ or 1411614112 14114 @@14134 14118Figure 141127/130142001412 1410414102 I14209 14210NSUMER VOIDEDCHE K r Bc T  
<B>BILLER</B>NFORMATION11.4202<B>BILL</B> <B>PAY</B>: SERVICE208 AUTHDATE BUREAU 1420AMOUNT s 6<B>BILLER</B> SERVICEDATABASE12142 CHECK St LI.'14204 CHECK 14134 1421414128 OF RECEIPT 14220 CHECa BANK SBANK 14218 UNTSTATEMENT 1421414106...

Dialog eLink: [Order File History](#)

7/K3/3 (Item 3 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00806382

METHOD FOR AFFORDING A MARKET SPACE INTERFACE BETWEEN A PLURALITY OF MANUFACTURERS AND SERVICE PROVIDERS AND INSTALLATION MANAGEMENT VIA A MARKET SPACE INTERFACE PROCEDE DE MISE A DISPOSITION D'UNE INTERFACE D'ESPACE DE MARCHE ENTRE UNE PLURALITE DE FABRICANTS ET DES FOURNISSEURS

DE SERVICES ET GESTION D'UNE INSTALLATION VIA UNE INTERFACE  
D'ESPACE DE MARCHE

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Detailed Description:

...to verify compliance/ non-compliance to Service Level Agreements (SLA). The process provides sufficient usage information for rating and billing.

This process ensures that the Network Performance goals are tracked, and that notification is provided when they are not met (threshold exceeded, performance

degradation). This also includes thresholds and specific requirements... ...the hybrid network.

Further, in step 1406, billing rates and discounts are determined based on the status of the hybrid network.

In addition to the Network Data Management 1300 generating billing events, the present invention also uses a Customer Interface Management process 132, as shown in Figure 15, to directly interact with customers and translate customer requests and inquiries into appropriate "events" such as, the creation of an order or trouble ticket or the adjustment of a bill. This process logs customer contacts, directs inquiries to the appropriate party, and tracks the status to completion. In those cases where customers are given direct access to service management systems, this process assures consistency of image across systems,, and security to prevent a customer from harming their network or those of other customers. The aim is to provide meaningful and timely customer contact experiences as frequently as the customer requires.

Figure 16 is... ...encompasses monitoring, managing and reporting of quality of service as defined in Service Descriptions, Service Level Agreements (SLA), and other service-related documents. It includes network performance, but also performance across all of service parameters, e.g., Orders Completed On Time. Outputs of this process are standard (predefined) and exception reports... ...specific service.

Figure 20 is a flowchart illustrating a Service Quality Management Process in accordance with a preferred embodiment. First, in step 2000, a hybrid network event is received that may include forecasts, quality objectives, available capacity, service problem data, quality of service violations, performance trends, usage trends, problem trends, maintenance... ...notification of a problem within a hybrid network is received by the system. Next, in step 2202, a resolution for the problem within the hybrid network is determined. The resolution may include a status report, resolution notification, problem reports, service reconfiguration, trouble notification, service level agreement violations, and/or outage notification. Finally, in step 2204, the progress of the implementation of the resolution is tracked.

The Problem Handling Process 1502 and the Network Data Management 1300 feed information to the Rating and Discounting Process 1306, as shown in Figure 23. This process applies the correct rating rules to... ...on a customer-by-customer basis, as required. It also applies any discounts agreed to as part of the Ordering Process, for promotional discounts and charges, and for outages. In addition, the Rating and Discounting Process 1306 applies any rebates due because service level agreements were not met. The aim is... ...discounts, promotions and credits.

Figure 24 is a flowchart illustrating Rating and Discounting Process in accordance with a

preferred embodiment. First, in step 2400, hybrid network customer usage information is received. In step 2402, network service level agreement violations are collected, and, in step

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, network quality of service violations are received by the Rating and Discounting system.

Next, in step 2406, rating rules are applied to the network customer usage information. Further, in step 2408, negotiated discounts are determined based on the network quality of service violations and, in step 2410, rebates are determined based on the network service level agreement violations. Thereafter, in step 2412, billing data reflecting the usage information, the negotiated discounts, and the rebates is provided to generate a customer invoice.

Utilizing information from the Rating and Discounting Process 1306, the Invoice and Collections Process 1504, as shown in Figure 25, creates correct billing information. This process encompasses sending invoices to customers, processing their payments and performing payment collections. In addition, this process handles customer inquiries about bills, and is responsible to resolve billing problems to the customer's satisfaction. The aim is to provide a correct bill and, if there is a billing problem, resolve it quickly with appropriate status to the customer. An additional aim is to collect money due the service provider in a professional and... ...customer is also able to notify the provider directly should such an event occur.

Figure 27 is a flowchart illustrating media communication over the hybrid network of the present invention. When a customer initiates a use of the hybrid network, the hybrid network, in a first step 2700, transfers the media over the network using IP information to route it to the appropriate destination. The media transferred over the network may be telephony data, image data, or any other data capable of packet switched transmission.

In a second step 2702, events are generated based on... ...of the media transfer. As discussed above with reference to Figure 17 and Figure 19, these events include performance notifications due to SLA violations, and customer generated events from the Customer Interface Management Process 1500, In a third step 2704, the events generated in step 2702 are utilized to generate a bill for the customer. In addition to normal billing for service provided via the hybrid network, the bill is modified based on events generated during the media transfer. For example, events representing SLA violations are used to credit customers. As discussed... ...into the switch from the same location of origin. This group of ports is the originating trunk group. After processing an incoming call, the switch transmits the call to a destination location, which may be another switch, a local exchange carrier, or a private branch exchange. The call is transmitted over a transmission line referred to as the terminating port, or trunk. Similar to the originating port, the terminating port is one of a group... ...group.

Contemporary telecommunication networks provide customers with the capability of using the general public network as well as the capability of defining a custom virtual network (VNet).

With a VNet, a customer defines a private dialing plan, including plan telephone numbers. A VNet customer is not limited to the default telephone... ...fields recording local time in three (3) second increments where local switch time represents the time of day at a switch. The I d other network subsystems.

t mepoint fields are used by the network switches, billing center, an Each subsystem, however, may require the time period for a different use and in a different fori-nat, such as in an epoch time forinat. Epoch time is the number of one (1) second increments since a particular date and time in history. For example, the billing center requires epoch time

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for its billing records whereas switch reports and error logs require local switch time.

A problem also arises when using only local switch time in that there is... ...match all of the call records associated with a specific telephone call. For example, for proper billing and cost control, it is necessary for the billing center to match the originating switch's call record to the terminating switch's call record. Also, for troubleshooting and security purposes, it may be necessary to trace a specific telephone call through the network with ease in order to isolate problem areas.

Therefore, there is a need for switches of a telecommunications network to uniquely identify each telephone call that traverses the network, thereby uniquely identifying all of the call records associated with a specific telephone call.

An...zero (0) local switch time, or any other time.

Epoch time is only a format and does not dictate that UTC must be used. The billing time and the local switch time may be in UTC or local time, and the local switch time may not necessarily be the same time that is used for billing. Therefore, the switch must keep billing time and local switch time separate in order to prevent the problems that occur during daylight savings time changes.

#### Network Call Identifier

This embodiment solves... ...call. The NOD is small enough to fit in a 32-word call record, thereby reducing the data throughput and storage. The NCID provides the billing center and other network subsystems with the ability to match originating and terminating call records for a specific telephone call.

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This embodiment also provides...A SER is reserved for special events such as the passage of each hour mark, time changes, system recoveries, and at the end of a billing block. The SER record forinat is also described in more detail below.

Figures 36 and 37 collectively illustrate the logic that a switch uses to... ...22) digits, including supplemental data, are recorded in the Authorization Code field of the call record. The Authorization Code field indicates a party who gets billed for the call, such as the calling location or a credit card call. If the data entry requires more than twenty-two (22) digits, the switch 1206-1210 records the billing information in an expanded record (ECDR, EPNR, EOSR, EPOSR) 3616.

In a seventh check 3700 on a call 3602, a switch 1206-1210 determines...channels.

Therefore, to indicate which, and how many, of the

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twenty-four channels is used during a wideband call, the switch records the channel information in an expanded record (ECDR, EPNR) 3708.

In an eighth check 3702 on a call 3.602, a switch 1206-1210 determines if the time and charges feature was used by an operator. The time and charges feature is typically used in a hotel scenario when a hotel guest makes a telephone call using the operator's assistance and charges the call 3602 to her room. After the call 3602 has completed, the operator informs the hotel guest of the charge, or cost, of the call 3602. If the time and charges feature was used with a call 3602, the switch 1206-1210 records the hotel guest's name and room number in an expanded record (EOSR... ...on another date/time. In the records, Timepoint I represents the epoch time that is the origination time of the call 3602. The other timepoint stored in the records are the number of seconds after Timepoint 1, that is, they are offsets from Timepoint I that a particular timepoint occurred. All.... stay at the maximum count if the time exceeds the limits.

The switch clock reflects local switch time and is used for all times except billing.

Billing information is recorded in epoch time, which in this embodiment is UTC. The Time offset is a number reflecting the switch time relative to the...an Event Qualifier equal to two which identifies that the change was made to the Local Switch Time and Time Offset of the switch.

The billing center uses the SER for its bill processing. The switch proceeds to step 3810 and exits the command. Referring back to step 3806, if the switch operator does not verify the changes... ...and exits the command without updating the Local Switch Time and Time Offset.

After the successful completion of a Change Daylight Savings Time Command, the billing records are affected by the new Time Offset. This embodiment allows the epoch time, used as the billing time, to increment normally through the daylight savings time change procedure, and not to be affected by the change of Local Switch Time and Time Offset.

traverses through the telecommunications network. Thus, the NCID is...Switch IID is the NCS Switch ID, not the alphanumeric Switch ID as recorded in the SER call record. If the AuthCode is used for other information, the intermediate and terminating switches record the NCID in the 64-word call record format. In contrast, originating switches do not use the AuthCode...the call 3602, the current switch proceeds to step 4418, thereby exiting the switch processing.

A system and method for the switches of a telecommunications network to generate call records for telephone calls using a flexible and expandable record format. Upon receipt of a telephone call, a switch in the network analyzes the telephone call to determine whether the default call record is sufficiently large to store call record information pertaining to the telephone call, or.... ...pertaining to the telephone call. After determining which call record to use, the switch generates the default or expanded call record. The switch sends a billing block, comprised of completed call records, to a billing center upon filling an entire billing block.

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#### Introduction To A Callback Telephony System in Accordance With A Preferred Embodiment

In today's telephony environment, a caller must contact an operator... ...from a computer and filling out information describing the parameters of a call. Information such as the date and time the call should be initiated, billing information, and telephone numbers of parties to participate in the call could be captured. Then, based on the information entered, a central or distributed computing facility with access to the hybrid network transmits e-mail in a note to each party required for the call copying the other parties to verify participation and calendar the event. The e... ...or organization needs are also enabled and can be tailored to meet the needs of a particular user based on more global infori-nation.

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Billing information would also be provided online. A user could enter a pre-arranged billing number or the ability to bill to a credit card or telephone number. If billing to a telephone number, the system treats the call like a collect or third party call to verify billing.

If profile information were predefined for a particular call scenario, then another option would allow an immediate connection of a conference call or single call... ...of a button, much as speed dialing is performed today except that more than one caller could be joined without intervention of the calling party, Internet callers are supported and an operator can be joined as required.

Before describing this aspect of the present invention, a description of internet environment is presented.

#### Internet

The Internet is a method of interconnecting physical networks and a set of conventions

for using networks that allow the computers they reach to interact. Physically, the Internet is a huge, global network spanning over 92 countries and comprising 59,000 academic, commercial, government, and military networks, according to the Government Accounting Office (GAO), with these numbers expected.... speed communication links between major supercomputer sites and educational and research institutions within the U.S. and throughout the Protocols govern the behavior along the Internet backbone and thus set down the key rules for data communication. Transmission Control Protocol/Internet Protocol (TCP/IP) has an open nature and is ... Internet connection is TCP/IP, which consists of a large set of data communications protocols, two of which are the Transmission Control Protocol and the Internet Protocol.

The International Telecommunication Union-Telecommunication Standardization Sector ("ITU") has established numerous standards governing protocols and line encoding for

telecommunication devices. Because many of these standards are referenced throughout this document, summaries of the relevant standards are listed below for reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3kHz Audio Channels.

ITU G.722 Recommendation for 7kHz Audio Coding within a 64kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6.3 kbits.

ITU G.728 Recommendation for coding of speech at 16kbit/s using low-delay code excited linear prediction... media.

An understanding of how information travels in communication systems is required to appreciate the recent steps taken by key players in today's Internet backbone business. The traditional type of communication network is circuit switched. The U.S. telephone system uses such circuit switching techniques. When a person or a computer makes a telephone call, the switching equipment within the telephone system seeks out a physical path from the originating telephone to the receiver's telephone. A circuit-switched network attempts to form a dedicated connection,

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or circuit, between these two points by first establishing a circuit from the originating phone through the local area transmitted to the Local Exchange Carrier (LEC) Central Office (CO) in analog form over an analog loop. The analog signal is not converted to digital form... the equipment is modem enough to support digital information. In an ISDN embodiment, however, the analog signals are converted to digital at the device and transmitted to the LEC as digital information.

Upon connection, the circuit guarantees that the samples can be delivered and reproduced by maintaining a data path of 64 Kbps (thousand bits per second)- This rate is not the rate required to send digitized voice... the 64 Kbps path is maintained from LEC

Central Office (CO) Switch to LEC CO, but not from end to end. The analog local loop transmits an analog signal, not 64 Kbps digitized audio. One of these analog local loops typically exists as the "last mile" of each of the telephone network circuits to attach the local telephone of the calling party.

This guarantee of capacity is the strength of circuit-switched networks. However, circuit switching has... ...way to gain connection until some other connection terminates.

Second, utilization can be low while costs are high- In other words, the calling party is charged for the duration of the call and for all of the time even if no data transmission takes place (i.e. no one speaks). Utilization.... ...very high quality codecs are available that can encode voice using less than one-tenth of the bandwidth of  
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PCM. However, the circuit switched network blindly allocates 64 Kbps of bandwidth for a call, end-to-end, even if only one-tenth of the bandwidth is utilized. Furthermore, each circuit... ...a single block may tie up a line for many minutes, rendering message switching useless for interactive traffic.

Packet switched networks, which predominate the computer network industry, divide data into small pieces called packets that are multiplexed onto high capacity intermachine connections. A packet is a block of data with a strict upper limit on block size that carries with it sufficient identification necessary for delivery to its destination. Such packets usually contain several hundred bytes of data and occupy a given transmission line for only a few tens of milliseconds.... ...larger file via packet switching requires that it be broken into many small packets and sent one at a time from one machine to the other. The network hardware delivers these packets to the specified destination, where the software reassembles them into a single file.

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Packet switching is used by virtually all computer interconnections.... ...was delivered before forwarding. Today, message switching is no longer used in computer networks because of the superiority of packet switching.

To better understand the Internet, a comparison to the telephone system is helpful. The public switched telephone network was designed with the goal of transmitting human voice, in a more or less recognizable fori-n. Their suitability has been improved for.computer-to-computer communications but remains far from optimal. A cable running between two computers can transfer data at speeds in the hundreds of ...be 1 1 orders of magnitude better than a voice-grade telephone line. New technology, however, has been improving the performance of these lines.

The Internet is composed of a great number of individual networks, together forming a global connection of thousands of computer systems. After understanding that machines are connected to the individual networks, we can investigate how the networks are connected together to form an internetwork, or an internet. At this point, internet gateways and internet routers come into play.

In terms of architecture, two given networks are connected by a computer that attaches...  
...as to how to send the data packets it receives to its destination through the use of continually updated routing tables. By analyzing the destination network address of the packets, routers make these decisions. Importantly, a router does not generally need to decide which host or end user will receive a packet; instead, a router seeks only the destination network and thus keeps track of information sufficient to get to the appropriate network, not necessarily the appropriate end user. Therefore, routers do not need to be huge supercomputing systems and are often just machines with small main memories... ...concatenation of the area code and the first three digits of the telephone number uniquely specify an end office and help dictate the rate and billing structure.

The two-wire connections between each subscriber's telephone and the end office are called local loops. If a subscriber attached to a given... ...switching techniques discussed earlier.

If the subscriber attached to a given end office calls a user attached to a different end office, more form a network by which the toll offices are connected. The toll, sectional, and regional exchanges communicate with each other via high bandwidth inter-toll trunks. The number...can operate at gigabit (trillion bit) per second speeds to handle the traffic from many computers.

Optical fibers (versus copper wires) that provide high data transfer rates, with host-to-ATM switch connections running at 100 or 155 Mbps (million bits per second).

3) Fixed size cells, each of which includes... ...designed to carry voice, video, and television signals in addition to data. Pure packet switching technology is not conducive to carrying voice transmissions because such transfers demand more stable bandwidth.

Frame relay systems use packet switching techniques, but are more efficient than traditional systems. This efficiency is partly due to the... ...has become unnecessary. Thus, frame relay offers increased performance compared to traditional systems.

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An Integrated Services Digital Network is an "international telecommunications standard for transmitting voice, video, and data over digital lines," most commonly running at 64 kilobits per second. The traditional phone network runs voice at only 4 kilobits...step 4506.

In a correlation step 4506, the event gathered in step 4504 is correlated with a second event obtained from a packet-switched network element. As with circuit-switched network elements, packet-switched event gathering and interpretation is typically performed by custom developed software interfaces which communicate directly with the network elements, process raw network events,  
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and sort the events by context prior to storing them. As discussed above, the correlation is preferably provided by a rules based inference... ...and second events obtained in steps

4504 and 4506. Preferably the fault message is created utilizing a comprehensive library of all possible message types and network events which categorizes the numerous messages that the hybrid network generates,

Figure 46 is a block diagram showing a Fault Management component 4600 in accordance with a preferred embodiment of the present invention. The Fault Management component 4600 records failures and exceptions in network devices (e.g. network routers or UNIX servers) and performs the following operations.

- 1) performs root-cause correlation of the failures and exceptions;
- 2) immediately takes corrective and/or... object format in a translation step 4806.

In a translation step 4806, information from step 4804 that is deemed critical to monitor and manage the network is translated into a standard object format. Generally, typical operational events are only logged and not translated into standard object format. However, critical information, such.... ...to provide universal information access by an object request broker. The object request broker allows the hformation Services Manager to share management information stored in distributed databases. The Proactive Threshold Manager uses the information provided by the Information Services Manger to determine a current level of service and compare the current... ...Management As discussed above, the element manager works with the Information Services Manager and the Presentation Manager to assist in the management of the hybrid network system. The three components are briefly described below to provide context for the detailed discussion of the element manager that follows.

#### Element Manner

The element manager communicates with the network elements to receive alarms and alerts through trapping and polling techniques. The element manager is the layer where the primary data reduction functions reside. At this layer, events received at the element manager II be filtered, aggregated and correlated to further isolate problems within the network.

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Information that is deemed critical to monitor and manage the network is translated into a standard object format and forwarded to the Information Services... ...between element managers and presentation managers. All information forwarded from the element managers is utilized by the information services manager to provide information to the network operators. The information services manager adheres to CORBA standards to provide ubiquitous infon-nation access via an object request broker (ORB). The ORB allows the infon-nation services manager to share management information stored in distributed databases.

The information services manager stores critical management information into operational (real-time) and analytical (historical) distributed databases. These databases provide common data storage so that new products can be easily inserted into the management environment. For example, if an event is received at an element manager

that is deemed critical to display to a network user, the information services manager will

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store a copy of the alarm in the operational database and then forward the alarm to the appropriate network operator.

Media and textual databases are also provided by the information services manager. The databases includes online manuals for administrative purposes, as well as for the maintenance specialists to access element specific information. The databases also store procedures, policies and computer based training to network users.

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The information services manager provides requested information (real-time and historical) to the network users via the presentation manager.

#### Presentation Manager

The presentation manager performs the function its name implies: the presentation of the information to an end user. Because different locations and job functions require access to different types of information, there are at least two types of display methods. The first is for graphic intensive presentations and the second is for nomadic... ...correlated events into standard object format.

Once the events are translated, they are ready for use by other system components, such as Fault Management or Billing.

#### Customer Support Structure

The organization model for customer service support in the NGN network provides a single point of contact that is customer focused. This single point of contact provides technical expertise in resolving customer incidents, troubles and requests... ...tiered support structure is greatly increases customer satisfaction in service needs. Each tier, or level, possess an increased level of skill, with tasks and responsibilities distributed accordingly.

Figure 50 is a flowchart showing a ...present invention. The Three

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Tiered Customer Support Process 5000 begins with a First Tier step 5002. In step 5002, a customer with a hybrid network problem is provided access to customer support personnel having a broad set of technical skills. The broad set of technical skills allows this group to... ...resolution of the problem than could usually be achieved with prior art product support techniques.

In addition, one embodiment of the present invention makes the Internet a viable alternative to telephone calls as a tool for providing consumer product support. Many on-line computer services, such as Prodigy and America On-Line, provide, for a fee as a part of their on-line service, software for connecting to and accessing the Internet.

The Internet access software accesses and "handshakes" with an "Internet Entry Server", which verifies the PIN number, provides the access and times the user's access time. The Internet Entry Server is programmed to recognize the PIN number as entitling the user to a limited prepaid or "free" Internet access

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time for on-line help services. Such a time period could be for a total time period such as 1 hour or more ... ...installing or using the sponsor/vendor's product. As an optional promotional service, upon termination of the on-line help session, access to other information on the Internet can be provided. Once the "free" on-line help service time or time period is up, the Internet Entry Server prompts the user with one or more of a plurality of options for extending the availability of online help. For example, the user can be prompted to enter a credit card number to which on-line help charges can be charged; he or she can be given the opportunity to answer additional survey information in return for additional "free" on-line help; or a 900 subscriber paid telephone access number can be provided through which additional on-line help will be billed via the non-national telephone company 900 billing cycles.

#### Integrated IP Telephony User Interface

One embodiment of the present invention allows a user of a web application to communicate in an audio fashion in-band without having to pick up another telephone. Users can click a button and go to a call center through a hybrid network using IP telephony. The system invokes an IP telephony session simultaneously with the data session, and uses an active directory lookup whenever a person uses... ...IP telephony process 5100 in accordance with a preferred embodiment of the present invention. The IP telephony process 5100 begins with a transmitting step 5102. In step 5102, data is transmitted over the hybrid network during a data session. This data session is typically a normal Internet browsing session, and is generally initiated by a web browser. Utilizing a web browser, users begin the data session by performing actions such as searching... ...another data handling or data communication device of the same character. The devices themselves typically are referred to as users, in the context of the network. Blocks or frames of data are transmitted over a link along a path between nodes of the network. Each block consists of a packet together with control information in the form of a header and a trailer which are added to the... ...handling tasks which were formerly required of the host. The communication processor is adapted to interface with the host and to route packets along the network; consequently, such a processor is often simply called a packet switch. Data concentrators have also been developed to interface with hosts and to route packets along the network. In essence, data concentrators serve to switch a number of lightly used links onto a smaller number of more heavily used links. They are often... ...through the network, in which user packets associated with a great number of users share link and switch facilities as the packets travel over the network. The packets may require storage at nodes between transmission links of the network until they may be forwarded along the respective outgoing link for the overall path. In connectionless transmission, another mode of packet-switched data transmission, no initial connection is required for a data path through the network. In this mode, individual datagrams carrying a destination address are routed through the

network from source to destination via intermediate nodes, and do not necessarily arrive in the order in which they were transmitted.

In a lookup step 5108, the telephonic communication over the hybrid network is limited bases on a user profile. Preferably the user profile is included in a rules database, By locating the user profile within the rules.... ...can provide seamless cross-location registration without the need for

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duplicate databases located on different networks. Using a rules database, a user utilizing the Internet in Europe can get the same telephony service as provided in the United States, as described above. Preferably the computer used to interface with the Internet includes multimedia equipment such as speakers and a microphone. Utilizing a multimedia equipped computer allows a user to use telephonic communication with little or no disruption while interfacing with the Internet. Multimedia computer speakers are used to receive the telephony audio from the network and the microphone is used to transmit the telephony

data to the...services component 5310, or a web customer service component 5312.

The present invention provides a new kind of web architecture framework (called "WAP in this document) that secures, administers, and audits electronic information use. WAF also features fundamentally important capabilities for managing content that travels "across" the "information highway." These capabilities comprise a rights protection solution that serves all electronic community members. These members include content creators and distributors, financial service providers, end-users, and others. WAF is the first general purpose, configurable, transaction control/rights protection solution for users of computers, other electronic appliances, networks,

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and the information highway.

The Internet is a method of interconnecting physical networks and a set of conventions for using networks that allow the computers they reach to interact. Physically, the...  
...operating system and architectural differences. As such, TCP/IP protocols are publicly available in standards documents, particularly in Requests for Comments (RFCs). A requirement for Internet connection is TCP/IP, which consists of a large set of data communications protocols, two of which are the Transmission Control Protocol and the Internet Protocol.

The International Telecommunication Union-Telecommunication Standardization Sector ("ITU") has established numerous standards governing protocols and line encoding for telecommunication devices. Because many of these standards are referenced throughout this document, summaries of the relevant standards are listed below for reference.

ITU G.711 Recommendation for Pulse Code Modulation of 3kHz Audio Channels.

ITU G.722 Recommendation for 7kHz Audio Coding within a 64 kbit/s channel.

ITU G.723 Recommendation for dual rate speech coder for multimedia communication transmitting at 5.3 and 6.3 kbits.

ITU G.728 Recommendation for coding of speech at 16 kbit/s using low-delay code excited

linear...in this event, there is no way to gain connection until some other connection terminates. Second, utilization can be low while costs are high. In other words, the calling party is charged for the duration of the call and for all of the time even if no data transmission takes place (i.e. no one speaks). Utilization...concatenation of the area code and the first three digits of the telephone number uniquely specify an end office and help dictate the rate and billing structure.

The two-wire connections between each subscriber's ...deployed widely to accommodate these high bandwidth services.

WAF supports a general purpose foundation for secure transaction management, including usage control, auditing, reporting, and/or payment. This general purpose foundation is called "WAF Functions" ("WAFFs"). WAF also supports a collection ... with capability parameter data to reflect the elements of one or more express electronic agreements between WAF participants in regards to the use of electronic content such as commercially distributed products. These control capabilities manage the use of, and/or auditing of use of, electronic content, as well as reporting information based upon content use, and any payment for said use. WAFF capabilities may evolve" to reflect the requirements of one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given content model (such as distribution of entertainment on CD-ROM, content delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would be able to securely select from amongst available, alternative control... ...materials, etc.) and certain control information related to the use of the object's content. A creating party may make a WAF container available to other parties. Control information delivered by, and/or otherwise available for use with, WAF content containers comprise (for commercial content distribution purposes) WAFF control capabilities (and any associated parameter data ...more WAFF capabilities may be present at a WAF installation, and certain WAF agreements may have been entered into during the registration process for a content distribution application, to be used by such installation for securely controlling WAF content usage, auditing, reporting and/or payment. Similarly, a specific WAT participant may enter into a WAF user agreement with a WAF content or electronic appliance provider when the user and/or her appliance register with such provider as a WAF installation and/or user. In such events... ...require certain one or more load modules execute as processes at an appropriate time to ensure that such credit will be used in order to pay for user use of the content. A certain

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content provider might, for example, require metering the number of copies made for distribution to employees... ...the execution of a metering method for copying of the property each time a copy was made for another employee. This same provider might also charge fees based on the total number of different properties licensed from them by

the user and a metering history of their licensing of properties... ...hitherto infeasibly low price points, "pass-along" control information that is enforced without involvement or advance knowledge of the participants, etc.

The present invention allows content providers and users to formulate their transaction environment to accommodate.

- (1) desired content models, content control models, and content usage information pathways,
  - (2) a complete range of electronic media and distribution means,
  - (3) a broad range of pricing, payment, and auditing strategies,
  - (4) very flexible privacy and/or reporting models,
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- (5) practical and effective security architectures, and
  - (6) other administrative procedures that together relate to information regarding their usage of electronic information and/or appliances,
  - (2) societal policy such as laws that protect rights of content users or require the collection of taxes derived from electronic transaction revenue, and
  - (3) the proprietary and/or other rights of parties related to ownership of, distribution of, and/or other commercial rights related to, electronic information.

WAF can support "real" commerce in an electronic form, that is the progressive creation of commercial relationships that form, over time, a network of interrelated agreements representing a value chain business model. This is achieved in part by enabling content control information to develop through the interaction of (negotiation between) securely created and independently submitted sets of content and/or appliance control information. Different sets...  
...invention allows a competitive electronic commerce marketplace to develop since the use of WAF enables different, widely varying business models using the same or shared content,

A significant facet of the present invention's ability to broadly support electronic commerce is its ability to securely manage independently delivered WAF component objects containing control information (normally in the form of WAF objects containing one or more methods, data, or load module WAF components). This independently delivered control information can be integrated with senior and other pre-existing content control information to securely form derived control information using the negotiation mechanisms of the present invention. All requirements specified by this derived control information must be satisfied before WAF controlled content can be accessed or otherwise used. This means that, for example, all load modules and any mediating data which are listed by the derived control information as required must be available and securely perform their required function. In combination with other aspects of the present invention, securely, independently delivered control components allow electronic commerce participants to freely stipulate their business requirements and trade

offs. As a result, much as with traditional,

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non-electronic... ...As a result, users

of WAF can avoid the confusion and expense and other inefficiencies of different, limited purpose transaction control applications for each different content and/or business model. For example, WAF allows content creators to use the same WAF foundation control arrangement for both content authoring and for licensing content from other content creators for inclusion into their products or for other use.

Clearinghouses, distributors, content creators, and other WAF users can all interact, both with the applications running on their WAF installations, and with each other, in an entirely consistent manner, using

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and reusing (largely transparently) the same distributed tools, mechanisms, and consistent user interfaces, regardless of the type of WAF activity.

WAF participants in a commercial value chain can be "commercially" confident (that...  
...appliance use, and/or they may include "static" electronic assertions, such as an end-user using the system to assert his or her agreement to pay for services, not to pass to unauthorized parties electronic

information derived from usage of content or systems, and/or agreeing to observe copyright laws. Not only can electronically reported transaction related information be trusted under the present invention, but payment may be automated by the passing of payment tokens through a pathway of payment (which may or may not be the same as a pathway for reporting). Such payment can be contained within a WAF container created, automatically by a WAF installation in response to control information (located, in the preferred embodiment, in one user's WAF installation secure subsystem) based upon usage of WAF controlled electronic content and/or appliances (such as governments, financial credit providers, and users).

WAF allows the needs of electronic commerce participants to be served and it can bind such participants together in a universe wide, trusted commercial network that can be secure enough to support very large amounts of commerce.

WAF's security and metering secure subsystem core will be present at all physical locations where WAF related content is (a) assigned usage related

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control information (rules and mediating data), and/or (b) used. This core can perform security and auditing functions (including metering) that operate within a "virtual black box," a collection of distributed, very secure WAF related hardware instances that are interconnected by secured information exchange (for example, telecommunication) processes and distributed database means.

WAF further includes highly configurable transaction operating system technology, one or more associated libraries of load modules along with affiliated data, WAF related... ...as well as system software designed to enable WAF

integration into host environments and applications. WAF's usage control information, for example, provide for property content and/or appliance related: usage authorization, usage auditing (which may include audit reduction), usage billing, usage payment, privacy filtering, reporting, and security related communication and encryption techniques.

WAF's fundamental configurability will allow a broad range of competitive electronic commerce business models...a user would then simply click on with a mouse pointer to select the items. Other options include scrollable menus, etc. In operation 5504, a payment is then accepted in exchange for the predetermined set of items. Such predetermined set of items is then stored in operation 5506, thereby allowing the.... sets of items should be easily accessible throughout the display catalog, such as through links.

Optionally, multiple languages maybe incorporated into the present invention and payment for the predetermined set of items may be accepted in any one of a plurality of currencies such as electronic and foreign.

Recently, an online.... basket. During the shopping, he or she examines the content of the shopping basket as required to check the item scheduled to purchase and the pay amount of the items. Accordingly, it is not necessary to always display the purchase list on the screen, but the functions to access to the...in operation 5904. If no keywords match, the user's words could be analyzed using a thesaurus to find keyword matches in operation 5906. A payment is then accepted in exchange for the solution in operation 5810 of Figure 58, as will be discussed in more detail below. It should be.... availability may be determined with respect to the selected items and the selected features thereof for display purposes in operation 6006. Further, in operation 6008, payment is accepted in exchange for the selected items and the selected features thereof. It should be noted that in the foregoing description, the items each.... select each of the features individually.

The present invention provides a system and method for conducting commerce Via an electronic means, such as a computer network, cable television network, or direct dial modem. Previous attempts to provide electronic commerce subsystems have been custom tailored to an individual commerce offering, and have not been adaptable.... application logic or presentation.

Another company, Open Market, is developing a similar electronic catalog system consisting of a HyperText Markup Language (HTML) authoring tool (called Storebuilder), and a server (called WebServer) connected to an integrated back-end commerce system (called TransactionLink). This system appears to share similar characteristics and disadvantages as the Netscape system,

Any of the foregoing types of browsers may employed to access various databases via the Internet in order to conduct electronic commerce-related business. Typical database or rile-based shopping cart systems require that the user be uniquely identified in order to associate particular data stored on the server with a particular user.

This requires the user to log-in or create an account, which is then stored in the server. Each subsequent request from the user must reference the unique identifier, either in the uniform resource locator (URL) or as hidden data passed back through a form submission. Either of these... the insurance contract is printed remotely from the client and mailed to him. The on-line terminals are not automatic self-service vending machines; the client must deal with the company through agents.

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In another example of a related system, a terminal includes a CPU and is coupled to a memory unit which has data bases storing information. Certain elements... ...data processing center, to take orders for goods or services from customers and transmit them for processing to the central data processing center, to accept payment, and to deliver goods or services in the form of documents to the customer when orders are completed.

The central data processing center is also.... trip or

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vacation which is periodically updated via a communication link with the remote control center. The self-service terminal normally operates off-line.

Payment for items purchased over the Internet is also a concern. Today, approximately 350 billion coin and currency transactions occur between individuals and institutions every year. The extensive use of coin and currency transactions has limited the automation of individual... ...which are used primarily by large commercial organizations.

The Automated Clearing House ("ACH") where a user can enter a preauthorized code and download information with billing occurring later, and a

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Point Of Sale (POS) system where a transaction is processed by connecting with a central computer for authorization for the transaction granted or denied immediately are examples of EFT systems that are utilized by retail and commercial organizations.

Rome Banking bill payment services are examples of an EFT system used by ...a trend towards off-line payments. For

example, numerous ideas have been proposed for some form of "electronic money" that can be used in cashless payment transactions as alternatives to the traditional currency and check types of payment systems,

The more well known techniques include magnetic stripe cards purchased for a given amount and from which a prepaid value can be deducted for... ...to obtain information offered by a customer and transmitted by a computer operating under the control of the customer over a publicly accessible packet-switched network (e.g., the Internet) to the computer operating under the control of the merchant, without risking the exposure of the information to interception by third parties that have access to the network, and to assure that the information is from an authentic source. It is further

desirable for the merchant to transmit information, including a subset of the information provided by the customer, over such a network to a payment gateway computer system that is designated, by a bank or other financial institution that has the responsibility of providing payment on behalf of the customer, to authorize a commercial transaction on behalf of such a financial institution, without the risk of exposing that information to interception by third parties. Such institutions include, for example, financial institutions offering credit or debit card services.

Such secure payment technologies include Secure Transaction Technology CM"), Secure Electronic Payments Protocol ("SEPP"), Internet Keyed Payments ("iKP"), Net Trust, and Cybercash Credit Payment Protocol. One of ordinary skill in the art readily comprehends that any of the secure payment technologies can be substituted for the SET protocol without undue experimentation. Such secure payment technologies require the customer to operate software that is compliant with the secure payment technology, interacting with third-party certification authorities, thereby allowing the customer to transmit encoded information to a merchant, some of which may be decoded by the merchant, and some which can be decoded only by a payment gateway specified by the customer.

Another such attempt to provide such a secure transmission channel is a general.

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purpose secure communication protocol such as.... ...connection supports only a two-computer connection. Therefore, SSL does not provide a mechanism for transmitting encoded information to a merchant for retransmission to a payment gateway such that a subset of the information is readable to the payment gateway but not to the merchant. Although SSL allows for robustly secure two-party data transmission, it does not meet the ultimate need of the.... ...comprehends that any of the general-purpose secure communication protocols can be substituted for the SSL transmission protocol without undue experimentation.

Banks desire an Internet payment solution that emulates existing Point of Sale (POS) applications that are currently installed on their host computers, and require minimal changes to their host systems.... ...is a critical requirement

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since any downtime for a banks host computer system represents an enormous expense. Currently, VeriFone supports over fourteen hundred different payment-related applications. The large number of applications is necessary to accommodate a wide variety of host message formats, diverse methods for communicating to a variety...bank's proprietary protocol, and by providing other value-added services that a merchant may not be able to obtain at another bank.,, Internet-based payment solutions require additional security measures that are not found in conventional POS terminals. This additional requirement is necessitated because Internet communication is done over publicly... ...utilizing the

Internet for a communication backbone, employ some form of cryptography.

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As discussed above, the current state-of-the-art in Internet based payment processing is a protocol referred to as SET. Since the SET messages are uniform across all implementations, banks cannot differentiate themselves in any reasonable way... ...is not a proper superset of all protocols utilized today, there are bank protocols which cannot be mapped or translated into SET because they require data elements for which SET has no placeholder. Further,

SET only handles the message types directly related to authorizing and capturing credit card transactions and adjustments...to perform commercial transactions that involve order entry systems Four different types of commercial transactions might commonly occur in a commercial online service. First, a user may be charged for the right to access all or parts of a useful publicly accessible online system. Second, the online service may pay the user for performing some type of action such as winning a contest or completing a marketing survey. Third, an online service may charge a content provider for placing certain information on the online service. For example, a content provider can be charged for placing an advertisement on the online service. Finally, a content provider can be paid by the online service for providing information that users may wish to access, can be provided on a for-fee basis. Conversely, an online service provider may wish to pay third party content providers for placing useful material on the online service.

Thus, when creating a publicly accessible online system, it is desirable to include...  
...advertising in a virtual shopping environment in operation 5410 of Figure 54. Figure 61 illustrates the operation in more detail. In operation 6102, a plurality of items, i.e. products or services, are displayed for purchase. Along with the items being displayed for purchase, or on a subsequent page or... ...time, or according to the premium paid by the advertiser. A user is permitted to select the items for purchase, as indicated by operation 6104. Payment is then accepted in exchange for the selected items in operation 6105. While the virtual shopping environment is being used, advertisement information may be displayed which.... ...to the user based on the profile of the user- This is particularly useful where the advertisements are being rotated. Then the advertiser would be billed based upon the number of times its advertisement was shown Note that the items each include at least one of a product and a service.... ...selling, up-selling, advertisements, and promotions are linked to pages containing greater detail or to a purchasing area.

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The use of advertising revenues to pay for information dissemination is well established in domains such as television and radio in which end users are tuned to a continuous signal over a...like.

Yet another example of mixing advertisements with information dissemination are newspapers and magazines.

Most, and perhaps all such examples of mixing advertisements with information content

are based on systems in which the end user has actively elected to view or listen to a program or to otherwise receive information. Furthermore, in virtually all such systems or media, the juxtaposition or placement of advertisements and information content is explicitly programmed or determined by human beings working as "editors" or in a similar content and/or presentation editing capacity.

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Distributing information via the Internet or other publicly accessible computer communication networks has been largely unsupported by advertising revenues due to the lack of good mechanisms for mixing advertising and information content in such a way as to be acceptable to both end users and advertisers.

There are, of course, some exceptions where advertising/content mixtures from other contexts, such as newspapers and television, have been simply replicated on the Internet. For instance, some newspapers have been "published" at least in part on the Internet, and include advertisements along with information content. In fact, some newspapers sell advertising space on an associated World Wide Web (WWW) site, which often includes.... Further, the user is allowed to select the items for purchase in operation 6308. Factors that are tailored include price and availability of the items. Payment is then accepted in exchange for the selected items in operation 6310, as discussed in more detail below.

The virtual shopping environment may be tailored...these advertisements, cognizant of the fact that consuming these advertisements will subsidize their electronic content consumption fees,

#### **ORDERREPLACEMENT**

Collects user information for order processing (shipping, billing)

Recaps order for confirmation (shipping, price, availability)

Allows for order maintenance (qty, product, shipping)

Referring to operation 5414 of Figure 54, another embodiment of the... receives an order for at least one of the products and services. User information is collected for order processing, including an address for delivery and billing. In the alternative, a user may enter an alphanumeric code representative of a source of currency, such as a credit card number or bank account.... such as by taking into account handling costs, the total weight of the items, the distance to final destination of the items, and the corresponding charges of the shipping provider. An estimate of the delivery date may also be given. It should be noted that mileage and the like could be calculated where services are to be rendered at a.... of the invention processes transactions pertinent to the purchase of items. For example, credit card transactions are processed, as are purchase order transactions. A structured payment plan may also be created.

The actual order is placed with a fulfillment house for physical shipping of a product, or the order is placed...may even be prevented from utilizing the software until the license agreement is generated.

Most software vendors currently favor licensing as the preferred method of distributing software. Licensing software provides the vendor with a certain amount of control over the distributed software which may be used to the vendor's advantage. For example, licensing software allows the vendor to prohibit unauthorized usage of the software that might facilitate unauthorized copying. In addition, licensing provides an advantageous method of providing and billing for software. Through licensing, the vendor may sell several identical copies of the same software and charge the buyer for each copy.

Licensing schemes have adapted to the network environment as well as the individual personal computer. In a network environment, such as a client-server network, multiple users may access the same copy of a particular application. Consequently, the vendor can charge the network owner not for the number of copies installed on the network, but for the number of users having access to the software.

Software... licenses granted, the relevant information is logged into a file to track usage of the various applications.

If a license is not available, the client contacts another server to find the appropriate license. The client in the conventional system has the responsibility to obtain licenses from the various servers, and the individual... may be based on the power of the processor or the number of processors in the system, or the number of individual nodes in a network, since these factors provide measures of the number of users which may use the software at any give time.

In many cases, however, it may... lack of accountability.

As computers have proliferated in availability, the investment in computer software has also grown, and there have been developed various methods for charging the computer user for use of computer software products. Typically computer software products are licensed, rather than sold, to the computer user under various arrangements.... are for indefinite periods of time, a license may also be for a limited duration and extendable, so that the entity marketing the product can charge a periodic fee (for example, annually) for use of the software product. Or use may be absolutely time-limited (for example, one-day), so that... moving of software among machines; however, hardware locks do not handle multiple software products on a single machine, and they require time and expense to deliver to the end user.

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When computer software products are used in a network environment (which may include computers running in various roles as workstations and servers of various types linked together over a data path), additional licensing challenges are present. For example, a network may permit a user at one node (which may be a terminal or workstation, for instance) to utilize a software product running at another node...site, but such an audit is intrusive, expensive, and may alienate potential or actual customers for licenses. Although other approaches exist under which one might charge a single fee per

server or per site or per entity, often on an individually negotiated basis, these approaches are often impractical or inflexible, in... ...practical in some network environments to determine and limit the number of nodes that may access a software product at a given time, and to charge a license fee based on the maximum number of nodes that are permitted to use the software product concurrently.

This is called "concurrent licensing". In.... financial processes, and

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(5) pathways of handling for electronic content, content and/or appliance control information, electronic content and/or appliance usage information and payment and/or credit.

WAF agreements may define the electronic commerce relationship of two or more parties of a value chain, but such agreements may, at.... ...be involved in a three party agreement in which the end-user agrees to certain requirements for using the distributed product such as accepting distributor charges for content use and agreeing to observe the copyright rights of the creator. A third agreement might exist between the distributor and a financial clearinghouse that allows the distributor to employ the clearinghouse's credit for payment for the product if the end-user has a separate (fourth) agreement directly with the clearinghouse extending credit to the end-user. A fifth, evolving...different application of control information may also result from content control information specifying that a certain party or group of parties shall be subject to content control information that differs from another party or group of parties. For example, content control information for a given piece of content may be stipulated as senior Hifortriation and therefore not changeable, might be put in place by a content creator and might stipulate that national distributors of a given piece of their content maybe permitted to make 100,000 copies per calendar quarter, so long as such copies are provided to boni fide end-users, but may pass only a single copy of such content to a local retailers and the control information limits such a retailer to making no more than 1,000 copies per month for retail sales.... ...elaborate. They can support widely diverse information management models that provide for electronic information security, usage administration, and communication and may support.

(a) secure electronic distribution of information, for example commercial literary properties,

(b) secure electronic information usage monitoring and reporting,

(c) secure financial transaction capabilities related to both electronic information.... ...or currency usage and administration capabilities, (d) privacy protection for usage information a user does not wish to release, and (e) "living" electronic information content dissemination models that flexibly accommodate.

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(1) a breadth of participants,

(2) one or more pathways (chains) for: the handling of content, content and/or appliance control information, reporting of content and/or appliance usage related information, and/or payment, (3) supporting an evolution of terms and conditions incorporated into

content control  
infor-nation, including use of electronic negotiation capabilities,  
(4) support the combination of multiple pieces of content to form new content aggregations, and (5...)

Claims:

...ONE SERVICE PROVIDER  
UTILIZING THE NETWORKFigure 1112081200aL12 21 1 1 1121012 1A1206TI1202  
2181216<B>BILLING</B>TELEPHONE CENTER'1% Figure 12INPUTS  
OUTPUTSCustomer Qos 6Pororroance Managementdata1130@ usaoe Rating &#x26; 13041300 infor-mation Discounting Ferv ce uality hybridnetwork during management of thehybrid networkI F156Determining <B>billing</B> rates anddiscounts based on the status ofthe hybrid networkFigure 14INPUTS OUTPUTSCustomer!iespqnses toEnd-Customer inquiries/ordersProcessesSales in.... ...Interface Sales inquiryProblems Orders ManagementInquiries lo,Orders Receive and record contact Orders OrderPayments Direct inquiries to appropriate HandlingProcurement 1502processesImplementation <B>Billing</B> inquiry&#x26; Maintenance Monitor and control status of ProblemPerformance Trouble report!1 inquiries, and escalate rouble repo handling 1302(QoS &#x26; SLA) Ensure a consistent imageMonitoring Performance ecure use o sFinance and Customer Q<B>Billing</B> complaints Performancepi complaints IvIdnagerne 1504anning and Other inquiriesDesign<B>Billing</B> inquiryProvider CollectionsCustomer care Responsessto Mkt. Researchinquiries/orders Feedback/InputProcessesFigure 15Receiving a service levelagreement for a hybrid networkcustomer.... ...implementation of the resolutionFigure 22INPUTS 1306  
OUTPUTSCustomer recordOrderdetails, discountsHandling1504service Service pricesPlanningDevelopment Rating/Discounting v er<B>Billing</B> records1 502 Apply service rates to usage nSLA violations Apply negotiated discounts GoQoS violations Apply rebatesHandling1304Service1300 ther provider.... ...based on the network quality ofFFservice violations 2408Applying rebates based on thenetwork service level agreement -2410violationsBOWWWWWWWWRIN. HMOIProviding <B>billing</B> data reflecting theusage information, the negotiated 2412discounts, and the rebates, the.<B>billing</B> data being suitable forgenerating a customer invoiceFigure 24INPUTS 1504 OUTPUTSPayments InvoicesCustomer1500 1500CustomerInterface Inquiries r IF inquiry Customer.... ...delete Create and distribute invoicescustomer acct Collect payments Other providelb Handle customer accountEstablish Treasuryinquiries A ntsu and otheroudesired <B>bill</B> date 'o2c'c1506 Debt Management p FinancialActivate <B>billing</B> pavab e,r r'eivaUle <B>Bill</B> on behalf of other providers receivable Functions(not covered)recordsFigure 25Receiving customer accountinquiries and customer <B>payment</B>informationCollecting <B>billing</B> data, the <B>billing</B> 2602data including discounts due toquality of service violations, andrebates due to service levelagreement violationsCreating customer account 2604invoices for distribution, whereinthe customer account invoices arebased on the customer

<B>payment</B>information and the <B>billing</B> dataM,Figure 26Provide transfer of media over thehybrid network utilizing IPinformation to route the media2702Generate an event based on QoS ofthe media transfer2704utilize the event to <B>bill</B> for servicesprovided via the hybrid networkFigure 27206 212801A@@  
CCESSOR2804MAINMEMORY 2806 ...Sales Force IntegApplication Data Human R@@zurccrs A- :io Calp2bll TEL2@@Directory Services Management & Operati Web IICommunity & RoleI kianagernenz.& Sloragei FAuditing &  
<B>Billing</B> for] On App o2tioll OfNetwoAQQjectDataj Usage - (<B>Charge</B>- back) (311ceypet:=ICTO@,F----- F @WebAppli=t-io,Web Performance Debugging Willi,5328 F-Aw-,g-nm-en-tc7f-User Leg Ar@ Vjtis Redundancy/ Backup...  
...PRODUCTS ANDSERVICES FOR WHICH THE ORDER IS PROCESSEDFigure 545300DISPLAYING A PLURALITY OF ITEMS FOR PURCHASE  
5500ALLOWINGAUSERTOSELECTAPREDETERMINEDSETOFTHEITEMSFORPU RCHASE5502 FACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE PREDETERMINED SET OF ITEMS 55045506STORING THE PREDETERMINED SET OF ITEMSALLOWING THE USER TO COLLECTIVELY SELECT THE PREDETERMINED SET...AVAILABLE PRODUCTS5804FGENERATING AT LEAST ONE RECOMMENDED SOLUTION BASED ON THE USER  
5806REQUIREMENTSDISPLAYING THE AT LEAST ONE RECOMMENDED SOLUTION5808ACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE AT LEAST ONE SOLUTIONFigure 58 5810PREASSOCIATING ITEMS WITH KEYWORDS 5900SELECTING ITEMS BASED ON KEYWORD TAKEN FROM THE USER....ITEMS TO BE PURCHASED 60046006DETERMINING A PRICE AND AVAILABILITY OF THE SELECTED ITEMS AND THESELECTED FEATURES THEREOF AND DISPLAYING THE SAMEACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE SELECTED ITEMS AND THESELECTED FEATURES THEREOF 6008Figure 60DISPLAYING A PLURALITY OF ITEMS FOR PURCHASE6102FDISPLAYING ADVERTISEMENT INFORMATION WHICH RELATES TO AT LEAST ONE OFTHE ITEMS DISPLAYED FOR PURCHASE 6103ALLOWING A USER TO SELECT THE ITEMS FOR PURCHASE6104ACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE SELECTED ITEMS6106Figure 61PREASSOCIATING ADVERTISEMENTS WITH INDIVIDUAL ITEMS OR WITH 6200ENTIRE CLASSES OF ITEMSAUTOMATICALLY DISPLAYING ONE OR....63046306bDISPLAYING THE AT LEAST ONE ITEM FOR PURCHASEALLOWING THE USER TO SELECT THE AT LEAST ONE ITEM FOR PURCHASE6 8ACCEPTING <B>PAYMENT</B> IN EXCHANGE FOR THE SELECTED ITEMFigure 636310ALLOWING A USER TO REQUEST TO UTILIZE A SOFTWARE PACKAGE 6402PROMPTING THE USER TO ENTER...A SYSTEM-402ANALYZING DATA FROM LO G FILES IN THE SYSTEMMANAGING RULES AND POLICIES IN THE SYSTEMAUDITING USAGE IN THE SYSTEM 8406<B>BILLING</B> FOR THE USAGE IN THE SYSTEM 8408MONITORING PERFORMANCE IN THE SYSTEM 84101 7c@MANAGING COMMUNITIES OF USERS IN THE SYSTEM 8412PROVIDING BACKUP ...DISCOUNTS, TAXES, FULFILLMENT COSTS AND DELIVERY COSTS10708ALLOWING SAVE AND RECALL OF THE PRODUCT AND PRICE OF THEORDER10710DETERMINING A METHOD OF <B>PAYMENT</B>10

12 RECEIVING THE <B>PAYMENT</B> 10714 FULFILLING THE ORDER Figure  
 107 Merchandise Check Out <B>Payment</B> Fulfillment Selection LOE00 10602 10604  
 06 Figure 10610800 10802 Browse & ecInteract rcha d- a mer anise N Price  
 negotiation 0 Check-out <B>Payment</B> 44 Integrity  
 check authorization Warehouse modification lo Status update 10804 Settlement  
 Fulfillment Figure 1080 PROVIDING AN ABILITY TO SEARCH FOR  
 INFORMATION ON THE '702... Figure 130 RECEIVING NOTIFICATION OF AN AGREEMENT TO SELL UNUSED 13100 BANDWIDTH FOR AN AMOUNT OF MONEY 13102 RECEIVING INFORMATION CONCERNING THE MANNER OF <B>PAYMENT</B> 13104 VERIFYING THE TRANSFER OF THE AMOUNT OF MONEY REALLOCATING THE UNUSED BANDWIDTH OF THE FIRST USER 1 3106 TO THE SECOND USER Figure 131... G B's ACCOUNT CHECK \$\$ or 1411614112 14114 @@ 14134 14118 Figure 141142001410414102 PELL 14114209 114210NSUMER VOIDED CHECK rC <B>BILLER</B> INFORMATION] 14202208 SERVICE BUREAU 14206 SERVICE 142121421 DATABASE CHECK & LIST----  
 142D4 ---, 14220 CHECK 14134 14214 BANK S CHECK 16421 8 ACCOUNT...  
 ... BANK C CHECK CK NKBCLEARING B's ACACCOUNT 13414112 14114 14118 14114 Figure 1421430014102 14104 VOIDED CHE 14132 1430d CONSUMER 4306 <B>BILLE</B> CUSTOC DATABASE ADVICE OF IMPENDING DEBIT FDE-BIT 143 8 14 :77 14312'1412814108 K B(OFDJ) cc 14310 PRE-AUTH 141 6...

Dialog eLink: [Order File History](#)

7/K3/4 (Item 4 from file: 349)

DIALOG(R)File 349: PCT FULLTEXT

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00418748

## SYSTEMS AND METHODS FOR SECURE TRANSACTION MANAGEMENT AND ELECTRONIC RIGHTS PROTECTION SYSTEMES ET PROCEDES DE GESTION DE TRANSACTIONS SECURISEES ET DE PROTECTION DE DROITS ELECTRONIQUES

Patent Applicant/Patent Assignee:

- INTERTRUST TECHNOLOGIES CORP;
- ;;

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#### Detailed Description:

...less &quent use. Traditional systems do not scale cost according to the extent or character of usage and traditional systems can not attract potential customers who find that a fixed price is too high. Systems using traditional mechanisms are also not normally particularly

secure. For example, shrink-wrapping does not prevent...a smart object may return via communication to the

user in the form of a secure 'return object"

containing retrieved information. A user may be charged for the remote retrieving of information, the returning of information to the user's VDE installation, and/or the use of such information. In

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the latter case, a user may be charged only for the information in the return object that the user actually uses. Smart objects may have the means to request use of one or remote resources (e.g.

centralized databases, super computers, etc.) while providing a secure means for charging users based on information and/or resources actually used.

0 support both "translations" of VDE electronic agreements elements into modern language printed agreement elements (such... ...secure hardware module would be in the same physical package as the actual display monitor, such as within the packaging of a video monitor or other display device, and such device practical, to be as tamper resistant as reasonable.

As another example, embedding a VDE hardware module 'into an I/O peripheral may have certain advantages from the standpoint of overall system throughput. If multiple VDE and/or appliance

usage information on the same mass storage device and in the same VDE management database.

requiring reporting and payment compliance by employing exhaustion of budgets and time ageing of keys. For example, a VDE commercial arrangement and associated content control information may

- 119 - MI... ...obligation, another participant can stop the delinquent party from successfully participating in VDE activities related to such agreement. For example, if required usage information and payment was not reported as specified by content control information, the 'injured' party can fail to provide, through failing to securely communicate from his VDE installation... ...one or more pieces of secure information necessary for the continuance of one or more critical processes. For example, failure to report information and/or payment from a clearinghouse to a content provider (as well as any security failures or other disturbing 'irregularities')

can result in the content provider not providing... ...the provider's content and which the clearinghouse would communicate to end-user's during a content usage reporting communication between the clearinghouse and end-user. As another example, a distributor that failed to make payments and/or report usage information to a

- 121 - content provider might find that their budget for creating permissions records to...the present invention is the use of portable VDEs as transaction cards at retail and other establishments, wherein such cards can 'dock" with an establishment terminal that has a VDE secure sub-system and/or an online connection to a VDE secure and/or otherwise secure and compatible subsystem, such as...transaction during a connection with another party's VDE installation (for example a VDE installation that is also on a financial or general purpose electronic network), by posting transaction information to a remote clearinghouse and/or bank, can ensure that sufficient backup is conducted to enable complete reconstruction of VDE card... ...VDE sub-system) and are used to carry out VDE managed transaction related processing. These triggered methods include independently (separably) and

- 126 - securely processable component billing management

methods, budgeting management methods, metering management methods, and related auditing management processes. As a result of this feature of the present invention, independent triggering of metering, auditing, billing, and budgeting methods, the present invention is able to efficiently, concurrently support multiple financial currencies (e.g. dollars, marks, yen) and content related budgets, and/or billing increments as well as very flexible content distribution models.

support, complete, modular separation of the control structures related to (1) content event triggering, (2) auditing, (3) budgeting (including specifying no right to C1 of use or unlimited right of use), (4) billing, and (5) identity (VDE installation, client identifier name, user 1 1 1, department, network, and/or user, etc.). The independence of these VDE control structures provides a flexible system which allows plural relationships between two or more of these ... its logical portions).

Without such separation between these basic VDE capabilities, it would be more difficult to efficiently maintain separate metering, budgeting, identification, and/or billing activities which involve the same, differing (including overlapping), or entirely different, portions of content for metering, billing, budgeting, and user identification, for example, paying fees associated with usage of content, performing home banking, managing advertising services, etc. VDE modular separation of these basic capabilities supports the programming of plural, "arbitrary" relationships between one or differing content portions (and/or portion units) and budgeting, auditing, and/or billing control information. For example, under VDE, a budget limit of \$200 dollars or 300 German Marks a month may be enforced for decryption of a certain database and 2 U.S. Dollars or 3 German Marks may be charged for each record of said database decrypted (depending on user selected currency). Such usage can be metered while an additional audit for user profile purposes...Such control information may, for example, enforce societal requirements such as laws

related to electronic commerce.

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VDE content control information may apply differently to different pathway of content and/or control information handling participants. Furthermore, permissions records rights may be added, altered, and/or removed by a VDE participant if... ...control information for electronic content and/or appliance rights protection, including the enforcing of preferences and requirements of VDE participants.

Normally, most usage, audit, reporting, payment, and distribution control methods are themselves at least in part encrypted and are executed by the secure subsystem of a VDE installation. Thus, for example, billing and metering records can be securely generated and updated, and encryption and decryption keys are securely utilized, within a secure subsystem.

Since VDE also employs...is concealed from outside observation and interference, the present invention ensures that content control information can be enforced. As a result, the creator and/or distributor and/or client administrator and/or

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other contributor of secure control information for each property (for example, an end-user restricting the kind of audit information he or she will allow to be reported and/or a financial clearinghouse establishing certain criteria for use of its credit for payment for use of distributed content) can be confident that their contributed and accepted control information will be enforced (within the security limitations of a given... ...or more objects and/or properties, or

portions of an object or property, can be directly used, such as decrypted, displayed, printed, etc;

(3) How payment for usage of such content and/or

content portions may or must be handled; and

(4) How audit information about usage information related to at...financial processes, and

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(5) pathways of handling for electronic content, content and/or appliance control information, electronic content and/or appliance usage information and payment and/or credit.

VDE agreements may define the electronic commerce relationship of two or more parties of a value chain, but such agreements may, at... ...be

involved in a three party agreement in which the end-user agrees to certain requirements for using the distributed product such as accepting distributor charges for content use and agreeing to observe the copyright rights of the creator. A third agreement might exist between the distributor and a financial clearinghouse that allows the distributor to employ the clearinghouse's credit for payment for the product if the end-user has a separate (fourth) agreement directly with the clearinghouse extending credit to the end-user. A fifth, evolving

- 142 content control information passes along its...more pathways (chains) for: the handling of content, content and/or appliance control information, reporting of content and/or appliance usage related information, and/or payment,

(3) supporting an evolution of terms and conditions incorporated into content control information, including use of electronic negotiation capabilities,

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content to form new content ...52 shows an example of a CLOSE method; FIGURES 53A-53B show an example of an EVENT method;

FIGURE 53C shows an example of a BILLING method; FIGURE 54 shows an example of an ACCESS method; FIGURES 55A-55B show examples of DECRYPT and ENCRYPT methods-,

FIGURE 56 shows an example...programs. Video production studio 204 may send these programs over lines 202, or may use other paths such as satellite link 205 and CD ROM delivery service 216. Video production studio 204 can send the programs directly to consumers 206, 208, 210, or it can send the programs to information utility...at least \$2.00 based on a credit account with independent financial provider 212 (such as Mastercard or VISA) may watch the video,

(2) virtual distribution environment 100 will 'meter" each time a consumer watches the video, and report usage to video production studio 204 from time to time, and

(3) financial provider 212 may electronically collect payment (\$2.00) from the credit account of each consumer

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who watches the video, and transfer these payments to the video production studio 204.

Information... ...200 allows even a small video production studio to market videos to consumers and receive compensation for its efforts. Moreover, the videos can, with

appropriate payment to the video production studio, be made available to other video publishers who may add value and/or act as repackagers or redistributors.

Figure 1... These usage-related "rules and controls" must be consistent with the 'rules and controls" specified by content creator 102.

Arrow 110 shows the distributor 106 distributing rights to use the content by sending the content's 'rules and controls" to a content user 112 such as a consumer. The content user 112 uses the content in accordance with the usage-related 'rules and controls."

In this Figure 2 example, information relating to content use is, as shown by arrow 114, reported to a financial clearinghouse 116. Based on this "reporting," the financial clearinghouse 116 may generate a hW and send it to the content user 112 over a "reports and payments" network 118. Arrow 120

- 172 ELI

-uoi

pnq@iqsi

.p

lua;uojo pua ppuuug aqj avuum SlluaToUja...WDE administrator.' Financial clearinghouse 116 in its

VDE administrator role sends 'administrative" information to the VDE participants. This administrative information helps to

keep the virtual distribution environment 100 operating properly. The WDE administrator" and financial clearinghouse roles may be performed by different people or companies, and there can be more than.... participant. For

example, a content user 112 generally can't change 'n@des and controls" SIDecified by a distributor 106 that require the user to pay for content usage at a certain rate. 'Rules and controls' may

"persist" as they pass through a 'chain of handling and control," and may be.... ....up" the wholesale prnce of goods. Figure 2A shows an example in which certain "rules and controls" persist unchanged from content creator 102 to content user 112; other

"rules and controls' are modified or deleted by distributor 106; and still other "rules and controls" are added by the distributor.

"Rules and controls" can be used to protect the content user' ...usage enabling "rules and controls" against unauthorized distribution and use.

In some examples, "rules and controls' may travel with the content they apply to. Virtual distribution environment 100 also

allows "rules and controls' to be delivered separately from content. Since no one can use or access protected content without 'permission" from.... ...already been (or will in the future be) delivered. "Rules and controls" may be delivered over a path different from the one used for content delivery. "Rules and controls" may also be delivered at some other time. The content creator 102 might deliver content to content user 112 over the electronic highway 108, or could make the content available to anyone.... ...used at the time it is delivered, or it may be stored for later use or reuse.

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The virtual distribution environment 100 also allows payment and reporting means to be delivered separately. For example, the content user 112 may have a virtual "credit card" that extends credit (up to a certain limit) to pay for usage of any content. A "credit transaction" can take place at the user's site without requiring any 'online" connection or further authorization. This.... ...Figure 3 shows an example of an overall process based on 'rules and controls." It includes an "events' process 402, a meter process 404, a billing process 406, and a budget process 408. Not all of the processes shown in Figure 3 will be used for every set of 'rules and... each user request to turn to a new page of an electronic book may be satisfied ("Go'), but it may not be necessary to meter, bill or budget those requests. A user who has purchased a copy of a novel may be permitted to open and read the novel as many times as she wants to without any further metering, billing or budgeting. In this simple example, the "event process" 402 may request metering, billing and/or budgeting processes the first time the user asks to open the protected novel (so the purchase price can be charged to the user), and treat all later requests to open the same novel as 'insignificant events." Other content (for example, searching an electronic telephone directory) may require the user to pay a fee for each access.

"Meter" process 404 keeps track of events, and may report usage to distributor 106 and/or other appropriate VDE participant(s). Figure 4 shows that process 404 can be based on a number of different factors such as.

- (a) type of usage to charge for,
- W what kind of unit to base charges on,
- (c) how much to charge per unit,

- (d) when to report, and
- (e) how to pay.

These factors may be specified by the 'rules and controls" that control the meter process.

Billing process 406 determines how much to charge for events. It records and reports payment information.

Budget process 408 limits how much content usage is permitted. For example, budget process 408 may limit the number of times content may be...example, methods 1000 may record the ident1tv of anyone who opens the electronic container 302, and can also control how information content is to be charged based on "metering." Methods 1000 may apply to one or several different information contents 304 and associated containers 302, as well as to all or...examples.

'modem" 618 or other telecommunications link;  
CD ROM disk 620 or other storage medium or device;

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a printer 622;  
broadcast reception 624;  
a document scanner 626; and  
a "cable" 628 connecting the appliance with a 'network."  
Virtual distribution environment 100 provides a ' ...may be extended based on additional "components' delivered to operating system 602.

'Rights operating system finictions' 604 can collect together and use 'components' sent by different participants at different times. The "components' help to make the operating system 602 "Scalable.' Some components can change how services work on little appliances versus how they work...and/or error-correction validation of information). SPU 500 may also perform secure data management processes including governing usage of, auditing of, and where appropriate, payment for VDE objects 300 (through the use of prepayments, credits, real-time electronic debits from bank accounts and/or VDE node currency token deposit accounts protections that make successful attacks exceedingly costly and time consuming. For example, ion

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implantation and/or other fabrication techniques may be used to make it very difficult to visually discern SPU die conductive pathways, and SPU internal circuitry may be fabricated in... ...considerations may include cost of implementation, cost of manufacture, desired degree of security,

and value of compactness.

SPU 500 may also be integrated with devices other than CPUs. For example, for video and multimedia applications, some performance and/or security advantages (depending ...500 may also be integrated into other peripheral devices, such as CD-ROM devices, set-top cable devices, game devices, and a wide variety of other electronic appliances that use, allow access to, perform transactions related to, or consume, distributed information.

#### SPU 500 Internal Architecture

Figure 9 is a detailed... ...more detail.

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#### Aficroprocessor 520

Microprocessor 520 is the 'brain' of SPU 500. In this example, it executes a sequence of steps specified by code stored (at-least temporarily) within ROM 532 and/or RAM 534.

Microprocessor 520 in the preferred embodiment comprises a dedicated central processing arrangement (e.g., a... ....CISC processor unit, a microcontroller, and/or other central processing means or, less desirably in most applications, process specific dedicated control logic) for executing instructions stored in the ROM 532 and/or other memory. Microprocessor 520 may be separate elements of a circuitry layout, or may be separate packages within a secure SPU 500.

In the preferred embodiment, microprocessor... RTC 528 must receive power 'in order to operate.

Optimally, the RTC 528 power source could comprise a small battery located within SPU 500 or other secure enclosure.

However, the RTC 528 may employ a power source such as an

- 202

soz

2x:qp,njoui'@j.eudo.idd-e s-e...on microprocessor 520, or outside SPU 500.

Decompression is important in the release of data such as video and audio that is usually compressed before distribution and whose decompression speed is important. In some cases, information that is useful for usage monitoring purposes (such as record separators or other delimiters) is... powered conventional RAM) may perform at least part of the role of ROM 532.

### **SPU Internal RAM**

SPU 500 general purpose RAM 534 provides, among other things, secure execution space for secure processes. In the preferred embodiment, RAM 534 is comprised of different types of RAM such as a combination of...an electronic appliance 600 may be the most cost effective way to store VDE secure database management files 610 and information that needs to be stored external to SPU 500. A host system hard disk secondary memory 652 used for general purpose file storage can, for example, also be used to store VDE management files 610.

SPU 500 may be given exclusive access to the external memory (e.g., over a local bus high speed connection provided by-BIU 530). Both dedicated and shared external memory may be provided.

### **SPU Integrated Within CPU**

As discussed above, it may be desirable to integrate CPU 654 and SPU 500 into the same integrated...secure memory 532, 534 when CPU/SPU 2650 is operating in the "normal" mode automatically result in the read information being encrypted before it is delivered to microprocessor 2652 (and similarly, and writes to the secure memory may result in the written information being decrypted before it is deposited into the...leave SPU mode and return to normal operation, the instructions executing in "SPU" mode may provide a specific indication to switch 2663 (e.g., a transfer to a designated memory address). This indication may be recognized by switch 2663 as indicating a return to "normal mode," and it may again restrict ... ...CROS") 602.

### **Rights Operating System 602**

Rights Operating System ("ROS") 602 in the preferred embodiment is a compact, secure, event-driven, services-based, "component" oriented, distributed multiprocessing operating system environment that integrates VDE information security control information, components and protocols with traditional operating system concepts. Like traditional operating systems, ROS 602...oriented events simplifies task management simplifies inter-process communications Services based allows simplified and transparent scalability simplifies multiprocessor support a hides machine dependencies

0 eases network management and support  
Component Based Architecture  
processing based on independently deliverable secure  
components  
242  
a component model of processing control allows different  
sequential steps that are reconfigurable based on  
requirements  
components can be added, deleted or controlled processes  
within an VDE node in a distributed, asynchronous  
arrangement  
control-led delegation of rights in a distributed  
environment  
supports chains of handling and control  
management environment for distributed, occasionally  
connected but otherwise asynchronous networked  
database  
real time and time independent data management  
supports "agent" processes  
Transparent  
can be seamlessly integrated into existing operating  
systems  
- 245  
can support applications not specifically written to use it  
Network friendly  
internal OS structures may use RPCs to distribute  
processing  
subnets may seamlessly operate as a single node or  
independently  
General Background Regarding Operating Systems  
An "operating system" provides a control mechanism for  
organizing... increase efficiencies and/or  
capabilities. ROS 602 may access, coordinate and/or manage  
further processors remote to an electronic appliance 600 (e.g., via  
- 249  
network or other communications link) to provide additional  
processor resources and/or capabilities.

ROS 602 is services based. The ROS services provided  
using a host processor...controlling one or more aspects of  
usage) may prepare audits for a distributor and format requests  
associated with the usage control for processing by a distributor.

Processes at either end of a reciprocal control may be further  
controlled by other processes (e.g., a distributor may be limited  
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by a budget for the number of usage control mechanisms they may produce). Reciprocal control mechanisms may extend over many sites and many levels (e.g., a creator to a distributor to a user) and may take any relationship into account (e.g., creator/distributor, distn'butor/user, user/user, user/creator, user/creator/distributor, etc.) Reciprocal control mechanisms have many uses in VDE 100 in representing relationships and agreements in a distributed environment.

ROS 602 is scalable. Many portions of ROS 602 control structures and kernel(s) are easily portable to various host platforms without recompilation. Any control structure may be distributed (or redistributed) if a granting, authority permits this type of activity. The executable references within ROS 602 are portable within a target platform. Different instances of...or more 'method cores,' method parameters and other associated data structures that ROS 602 may collect and assemble together to perform a task such as billing or metering.- Different users may have different combinations of elements, and some of the elements may be customizable by users with appropriate authorization. This increases...to the smallest sub-element using a flexible control structure. ROS 602 can, for example, control the printing of a single paragraph out of a document file.

ROS 602 provided by the preferred embodiment permits secure modification and update of control information governing each component. The control information may be provided... ...format such as method options to an end-user. An end-user may then customize the actual control information used within guidelines provided by a distributor or content creator.

Modification and update of existing control structures is preferably also a controllable event subject to auditing and control information.

ROS 602 provided by the... ...created by "adding on" to existing operating systems. This involves hooking'V-DE "add ons" to the host operating system at the device driver and network interface levels. Alternatively, ROS 602 may comprise a wholly new operating system that integrates both VDE functions and other operating system functions.

Indeed, there are... Because security may be better/more effectively enforced with the assistance of hardware security features such as those provided by SPU 500 (and because of other factors such as 'increased performance

provided by special purpose circuitry within SPU 500), at least one SPE 503 is preferred for many or most higher...as keyboard 612, display 614, other devices such as a "mouse' pointing device and speech recognizer 613, modem 618, printer 622, and an adapter for network 672.

Kernel 680 may also be responsible for initialiv loading the remainder of ROS 602, and may manage the various ROS tasks (and associated underlying....680. It receives and routes "calls" from/to API 682, HPE 655 and SPE 503, for example.

Object switch 734 may manage construction, deconstruction and other manipulation of VDE objects 300.

User NotificatioryException Interface 686 in the preferred embodiment (which may be considered part of API 682 or another application coupled...functions 604 may be passed directly without translation by redirector 684.

Referring again to Figure 10, ROS 620 may also include an "interceptor" 692 that transmits and/or receives one or more real time data feeds 694 (this may be provided over cable(s) 628 for example), and routes one or...that must be present in a control structure to establish creditworthiness, audit processes which must be performed by the licensee, etc.). As another example, a distributor may give one user more favorable pricing than another user by deliverL'rg different data elements defining pricing to different users. This attribute of supporting multiple party securely. independently deliverable control information is furidamental to enablinu electronic commerce, that is, defining of a content and,,or appliance control infor-manon set that represents the requirements.... ...of independent parties such as content creators, other content providers, financial service providers, and/or users.

In the preferred embodiment, ROS 602 assembles securely independently deliverable elements into a component assembly 690 based in part on context parameters (e.g., object, user).

Thus, for example, ROS 602 may securely assemble different...price element intended by the VDE content distributor, then the person could establish a price of zero instead ofthe price the content distributor 'intended to charge. Similarly, if the element establishes an electronic credit card, then an ability to substitute a different element could have disastrous consequences 'in terms of allowing a person to charge her usage to someone else's (or a non-existent) credit

card. These are merely a few simple examples demonstrating the importance of ROS 602...690.

The PERC 808 may reference one or more method 'cores' 1000'. A method core 1000' may define a basic 'method" 1000 (e.g., 'control,' " billing," "metering," etc.)

In the preferred embodiment, a 'method" 1000 is a collection of basic instructions, and information related to basic instructions, that provides context, data...provides an array of configuration options using existing operating system components. ROS 602 also communicates with external services through the RPC 'interface to seamlessly 'de distributed and/or remote processing. In smaller scale

prov-1 instances of ROS 602, a simpler message passing IPC protocol may be used to conserve resources... ROI-SVC-IOCTL (long service.id, long subservice-id.

int command. BYTE \*buffer)

This IOCTL function provides a generalized control interface for a RSI. A user specifies the ser@4ce id parameter and an optional subservice-id parameter that they wish to control. They specify the control command parameter(s), and...the preferred embodiment follows a simple block based standard. In the preferred embodiment, an SPE RSI 736a may be modeled after the packet interfaces for network Ethernet cards. This

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(Cog acIS aplslno sassamad jo A&aT & jo jMod aq; moi) pa2uum XTuuui@id St 'aal-el passn3sr m s...level information about a VDE object 300, including mapping the object into a preexisting OS's name space. This permits seamless access to VDE protected content using "normal" file system 687 access techniques provided by a preexisting operating system.

in the integration scenarios discussed above, each preexisting tanzet OS File...as part of API service manager 742. Notification services manager 740 in the preferred embodiment provides notification support to dispatch specific notifications to an appropriate user process via the appropriate A-PI return, or by another path. This mechanism permits notifications to be routed to any authorized process-not just back to a process that specified a notification mechanism.

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API...communications.

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There are several important examples of the use of External Services Manager 772. Some VDE objects may have some or all of their content stored at an Object Repository 728 on an electronic appliance 600 other than the one operated by a user who has, or wishes to obtain 600 where the VDE objects desired (or their content) is stored. In addition, file system 687 may be a network file system (e.g., Netware, LANtastic, NFS, etc.) that allows access to VDE... ...content tags, host ID to URL conversion (e.g., using Name Services Manager 752) and an HTTP-aware instance of Services Transport Layer 786.

In other examples, External Services Manager 772 may be used to locate, connect to, and utilize remote event processing services; smart agent execution services (both to provide... preferred embodiment: an object definition stage 1220, and an object creation stage 1230. The role of object submittal manager 774 is indicated by the two different "user input" depictions (774(1), 774(2)) shown 'in Figure 12A.

In one of its roles or instances, object submittal manager 774 provides a... ...to be created. This user interface 774a may, for example, allow the user to specify that she wants to create an object. allow the user to designate the J content the object will contain, and allow the user to specify certain other aspects of the information to be contained within the object (e.g., rules and control information, identifying information, etc.).

Part of the object definition task 1220 in the preferred embodiment may be to analyze the content or other information to be placed within an object. Object definition user interface 774a may issue calls to object switch 734 to analyze 'content" or - 330

other information that is to be included within the object to be created in order to define or organize the content into "atomic elements" specified by the user. As explained elsewhere herein, such 'atomic element" organizations might, for example, break up the content into paragraphs, pages or other subdivisions specified by the user, and might be explicit (e.g., inserting a control character between each 'atomic element') or implicit.

Object switch 734 may... ...way of time independent stream interface 762 and real time stream inter-face 4-60). and is capable of accessing and retrieving

stored content or other Information stored within file system 687.

The result of object definition 1240 may be an object configuration file 1240 specifying certain parameters relating to...764 within object switch 734. Container

manager 734 is responsible for constructing an object 300 based on the object configuration file 1240 and further user input. The user may interact "With the object construction 1230 through another instance 774i 2,@ of object submittal manager 774. In this further user interaction provided by object submittal manager 774, the user may specify permissions... ...form to the object switch for incorporation into the object. Such information provided by SPE 503 may

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include, in addition to encrypted content or other information, one or more PERCs 808, one or more method cores 1000', one or more load modules 1100, one or more data structures such as... ...format' Ject content ion as

specified by object configuration file 1240. Container manager 764 may then insert into the container 302 the content or other information (as encrypted by SPE 503) to be included in the new object. Container manager 764 may also insert appropriate permissions, rules... ...appropriate information within secure database 610.

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#### Communications Subsystem 776

Communications subsystem 776, as discussed above, may be a conventional communications service that provides a network manager 780 and a mail gateway manager 782. Mail filters 784 may be provided to automatically route objects 300 and other VDE information to/from the outside world.

Communications subsystem 776 may support a real time content feed 684 from a cable, satellite or other telecommunications link.

#### Secure Processing Environment 503

As discussed above in connection with Figure 12, each electronic appliance ...residing in SPU ROM 532a and/or EEPROM 532b. The Figure 14B example of an INVRAM 534b memory map shows the task manager 576 and other information loaded into NVRAM.

One of the functions performed by kernel/dispatcher 552 is to receive RPC calls from ROS RPC manager 732. As explained...2uTs T4onS -sa-imoruas loxmoo xaTduaoz)

60Z60/86 OM

"channel" task, a "control" task, an "event" task, a "meter" task, a

'budget' task, and a 'billing' task. Depending on the size of SPU RAM 532, 'swap blocks' may be swapped out of RAM and stored temporarily on secondary storage 652 until...imposes a potentially indeterminate delay into a typically time critical process, may limit SPE 503 throughput, and may increase overhead.

This issue notwithstanding, there are other significant processing issues related to building single-threaded versions of SPE 503 that may limit its usefulness or capabilities under some circumstances. For example, multiple...

Dialog eLink: [Order File History](#)

7/K,3/5 (Item 1 from file: 654)

DIALOG(R)File 654: US PAT.FULL.

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Method for providing and obtaining content

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...20031120

Summary of the Invention:

...0002] This invention relates to a content providing and obtaining system, and is applicable, for example, to a data providing system for providing data on various distribution information such as various content data and the advertisement, of music, motion pictures, etc. (hereinafter, this is referred to as distribution data) to a customer by means of the Internet.

[...

...0004] In recent years, the Internet being a computer

communication network that it had been used in many institutes or the like for research and study in the world scale, has been quickly popularized also among companies and customers as a computer communication tool, by a use in business such as sale for merchandise, distribution of content data, and advertisement of a company and merchandise...

...0005] By using the Internet in business, the customer can buy desired merchandise and can obtain desired content data by a personal computer for instance, while staying at home. At the same time, the customer can obtain various distribution data such as the advertisement of a company and merchandise by the personal computer...

...0006] In the distribution of content data on the Internet, the transmission efficiency of the content data can be improved by transmitting compressively-coded content data to a customer's personal computer

Description of the Invention:

...0083] (1) Usage Pattern of Internet by Data Providing System  
...

...0084] As shown in FIG. 1, in a data providing system 1, communication can be performed on the Internet (not shown) between a system management site 2 that integrally manages the above data providing system and the customer 3, between the system management site...

...company 5 that sells merchandise described later to these agencies 4A to 4N, and between the system management site 2 and a site for providing distribution data 6 established by an advertiser/company (hereinafter, this is referred to as advertiser/company site), respectively...

...shown in FIGS. 1 and 2, the agencies 4A to 4N are rental shops that sell and rent the content (composed of audio data, video data, text data, etc.) of music, a motion picture, game software, a novel, a photograph, a comic, etc., as commercial packaged media such as a compact ...4N that recorded the content data via the system management site 2 by a communication function provided inside, and can execute processing for purchasing/renting content data (including accounting...

...0097] Therefore, when the customer 3 newly requests to purchase/rent content data by the portable dedicated terminal 7A-7N in rental, the agency 4A-4N can transmit the requested content data to the portable dedicated terminal 7A-7N in rental via the system management site 2, and the content data can be recorded therein. Thus, content data can be easily distributed on the Internet also to a customer 3 who does not own a device

connectable to the Internet (hereinafter, this is referred to as device for connecting to the Internet) such as a personal computer, similarly to a customer 3 who owns a device for connecting to the Internet.

[...]

...data sent from the portable dedicated terminal 7A-7N and the request terminal, to the agency 4A-4N. Thus, the contents of that request are added to the customer registration information in the customer database 8 as additional customer information, and the above customer registration information is updated. Thereby, customer's...

...management site 2 retrieves data in the advertiser/company database  
10

based on his/her customer registration information, selects  
advertisers  
and companies that can provide distribution data matching his/her  
taste, and introduces the above selected advertisers and companies to  
the  
customer 3 via the portable dedicated terminal 7A-7N...

...to change the color of the case body), the agency 4A-4N moves all  
data

in the portable dedicated terminal 7A-7N rented by the customer 3  
(that is, the content data, the desired distribution data provided  
from the advertiser, etc.) into the other portable dedicated  
terminal 7A-7N in the color specified by the customer 3, and  
changes them...

...0113] On the other hand, if extending the rental term of the  
content data is replied from the portable dedicated terminal 7A-7N  
being rented to the customer 3 via the system management site 2, the  
agency 4A-4N monitors the end of that extended rental term of the  
above  
content data...

...0114] Although the rental term of the content data has expired,  
if the customer 3 does not bring that portable dedicated terminal 7A-  
7N,

for instance, the agency 4A-4N sends an erasing...

...of the packaged media read from the customer database 8 at the system  
management site 2. It is because the purchase/rental price for the  
content data being occupied by the customer 3 being the same as  
the content data stored in the packaged media has been already  
paid. Then, the agency 4A-4N hands the packaged media to the customer  
3

at the shop or delivers it by the delivery company 9 from  
the sales company 5...

...0118] In this manner, the agency 4A-4N makes the exchange value of  
the

content data being occupied by the customer for the packaged media  
to be almost equal, and exchanges the content data for the above  
packaged media (hereinafter, this exchange is referred to as  
equivalent

exchange). Thereby, wasting the content data purchased/rented by the portable dedicated terminal 7A-7N when that portable dedicated terminal 7A-7N is returned can be prevented, and the packaged media can

be provided by a minimum investment without making the customer 3 wastefully invest in both of the content data and the packaged media...

...0119] In this connection, the system management site 2 collects charges for the use of the Internet from the customer 3 every time when the customer 3 uses the Internet (that is, every time when the customer 3 purchases/rents content data and the portable dedicated terminal 7A-7N). The system management site 2, however, issues a point to give a privilege such as a discount...

...0120] At the agency 4A-4N, the customer 3 can use the obtaining point

for electronical accounting instead of a part or all of the payment, when in purchasing/renting content data and a portable dedicated terminal 7A-7N, and when in exchanging content data for packaged media, etc...

...0121] Furthermore, the agency 4A-4N can accept also payment by cash and a prepaid card at the shop, instead of electronical accounting,

when the customer 3 purchases/rents a portable dedicated terminal 7A-7N,

or exchanges content data for packaged media, or the like...

...0124] As shown in FIG. 3, the customer 3 who purchased the portable dedicated terminal 7A-7N can purchase/rent desired content data only from the agency 4A-4N that sold the portable dedicated terminal 7A-7N, by the above portable dedicated terminal 7A-7N via the Internet, and can obtain desired distribution data by contracting to an advertiser and/or a company similarly to the case described above with reference to FIG. 2...

...0136] In this manner, the data providing server 51 can prepare the customer the portable dedicated terminal 53 storing the content data according to the customer's request for purchase and rental. Thus, the portable dedicated terminal 53 can be sold and rented to the customer by...

...0140] In this manner, the data providing server 51 enables the customer

to easily use content distribution on the Internet, and freely obtain desired content data by the portable dedicated terminal 53...

...data providing server 51 customizes the content selecting screen based

on the screen customizing data every time when obtaining request data is

sent from the customer requesting the customizing of the content selecting screen by the portable dedicated terminal 53. The customer can

select content data on thus customized screen...

...equivalent exchange request data and the detected result by the updating part 60 by a package retrieving part 64. Thereby, the obtaining price of the content data occupied by the customer, and the selling price and the title of packaged media storing the above content data are detected as the target of the equivalent exchange...

...0157] The data providing server 51 computes a balance between thus detected obtaining price of the content data occupied by the customer and the selling price of the packaged media by the package retrieving part 64, and transmits the above computed balance from the sending part 61 to the customer's portable dedicated terminal 53 as retrieval result information, with these obtaining price of the content data and the selling price and the title of the packaged media...

...of the content data stored in the packaged media by the purchase or the rental via the portable dedicated terminal 53. Thus, if exchange acceptance data to accept the equivalent exchange is sent from the portable dedicated terminal 53 sold/rented to the customer, the data providing server 51 electronically performs accounting only for the balance between the obtaining price of the content data occupied by the customer and the selling price of the packaged media. Then, the packaged media is delivered to the above customer directly or by...

...such as discount to the customer according to the using state by a point issuing part not shown, every time when the customer uses the Internet by the request terminal 52 and/or the portable dedicated terminal 53. The above issued point is transmitted to the customer database 55, sequentially added to the customer registration information, and the above customer registration information is updated by the updating part 60...on the equivalent exchange is sent from the data providing server 51, the portable dedicated terminal 53 receives this by the receiving part 80, and transmits this to the reproducing part 85 to display the obtaining price of the content data that the customer occupies by purchase or rental, the selling price and the title of packaged media, and the difference between these prices based...

...content data that the customer occupies and the selling price of the packaged media is performed by a method that the customer specified (that is, payment by money or points). Therefore, the customer can obtain the packaged media by a minimum investment...

...0190] In this connection, if confirmation screen data for content data that the rental term is near expiration is sent from

the data providing server 51, the portable dedicated terminal 53 receives this by the receiving part 80, and transmits this to the reproducing part 85 to display a confirmation screen based on that confirmation screen data, and notifying the customer of that the rental term of the content data will expire by the above confirmation screen...

...0193] According to the above configuration, in this data providing system 50, the data providing server 51 records content data specified by the customer in a portable dedicated terminal 53 only for an agency that the customer specified according to reservation data sent from...

...0194] Then, if the customer sends content specifying data from the portable dedicated terminal 53, the data providing server 51 reads content data from the content database 56 according to the content specifying data, and sends the above read content data to that portable dedicated terminal 53 for recording...

...is requested from the customer by the portable dedicated terminal 53, the data providing server 51 provides the packaged media to the customer by the payment of the difference between the obtaining price of the content data occupied by the customer and the selling price of the packaged media...

...0198] Accordingly, in this data providing system 50, even if the customer does not have a device for accessing the Internet, by previously reserving the purchase or the rental of a portable dedicated terminal 53 that can record and reproduce content data by a request terminal 52 installed in a KIOSK or the like, the customer can obtain content data distributed to the portable dedicated terminal 53 after the customer received the reserved portable dedicated terminal 53...

...the portable dedicated terminal 53 only for an agency by purchase and/or rental. Therefore, agencies can easily get customers who use not only the Internet but also the agencies, and also can easily use and can participate in the Internet.

[...]

...According to the above configuration, in the data providing server 51, the portable dedicated terminal 53 only for an agency that can record and reproduce content data is sold or rented to the customer according to reservation data sent from the request terminal 52. Content data is distributed according to content specifying data sent from the sold/rented portable dedicated terminal 53, and is recorded

in the portable dedicated terminal 53. An advertiser and/or a...

...selected based on customer registration information according to customer's permission sent from that portable dedicated terminal 53, and

is introduced to the customer. A content selecting screen is customized according to a customizing request sent from the above portable dedicated terminal 53, and is provided to the portable dedicated

terminal 53. And the exchange values of the content data occupied by the customer by distribution and packaged media storing the same content data are equal, and they are equivalently exchanged according to an equivalent exchange request sent from the portable dedicated terminal 53. Thereby, a customer who does not have a device for

accessing the Internet can easily use this system while sufficiently enjoying the convenience of the Internet. By the portable dedicated terminal 53 only for an agency that uses the Internet,

this system can easily get customers. Thus, a data providing system...

...terminal that the customer 3 had been used) and a settlement processing

server 104 are connected to the above data providing server 101 on the Internet 105, respectively...

...0208] If customer reservation information to reserve content data by rental (hereinafter, specially this is referred to as rental reservation request data) is sent as reservation request data, from the

request terminal 103 via the Internet 105 by operation by the customer who wants to rent the content data, the data providing server 101 receives this by a receiving part 115, converts the above received rental reservation request data into recording control data by

an accounting part 116, and transmits this to a recording control part 117...

...data including dedicated terminal identification information (hereinafter, this is referred to as dedicated terminal ID) peculiar to

the portable dedicated terminal 102 for recording the content data that the customer requested to rent by the recording control part 117, and transmits this to the request terminal 103 from a sending part 118 via the Internet 105 to notify the customer of that the rental reservation of the desired content data has been accepted...

...0210] The data providing server 101 reads the content data that the customer requested to rent from the content database 111 according to the recording control data by the recording control part 117, and sends this to the portable dedicated terminal 102 having the...

...a customer ID, a password, the title of content data D1 of which the rental is requested, a rental term, a paying method of rental charges (payment by cash or prepaid card at shop, payment by prepaid card by request terminal, payment by credit...

...D2 from the request terminal 103 by the receiving part 115, the data providing server 101 extracts information on the paying method of the rental charge (hereinafter, this is referred to as payment data) from the rental reservation request data D2 by the accounting part

116...

...0215] If payment specified by the payment information is credit, the data providing server 101 reads the customer registration information on the customer who requested to rent the content data D1 from...

...111 based on the customer ID included in the rental reservation request

data D2 by the accounting part 116, retrieves a data table in the content database 111 based on the title of the content data D1 included in the above rental reservation request data D2, and reads the

additional information...

...0216] The data providing server 101 executes accounting by the accounting part 116, based on the rental charge for the portable dedicated terminal 102 and an account number in the dealing bank

of the agency previously stored in the contents database 111, the rental reservation request data D2, the customer registration information, and the additional information on the content data D1. Thereby, the data providing server 101 generates accounting information representing the amount of charge according to the rental term of the content data D1 to the customer, the account numbers of the agency and the customer, etc., and sends this from

the sending part 118 to the settlement processing server 104 via the Internet 105...

...by the request terminal 103 is specified by the rental reservation request data D2 from the request terminal 103, the data providing server

101 executes accounting according to the rental charges for the portable dedicated terminal 102, the rental reservation request data

D2, and the additional information on the content data D1, by the accounting part 116. The data providing server 101 computes the amount of charges to the customer according to the rental term of the content data D1, and sends information on the above computed amount of charges as accounting data from the sending part 118 to the request terminal 103 via the Internet 105...

...0225] If the data providing server 101 receives payment-by-prepaid completion data from the request terminal 103 by the receiving part 115 by that the payment by a prepaid card has completed based on the accounting data, the data providing server 101 generates recording control data D3 by adding the agency ID to the rental reservation request data D2 storing information

representing that the payment by the prepaid card has completed by

the request terminal 103, instead of the customer's account number by an accounting part 116, and transmits...

...0226] Then, if the data providing server 101 transmits the recording control data D3 from the accounting part 116 to the recording control part 117, the data providing server 101 sends rental reservation acceptance data from the sending part 118 to the request terminal 103 by the recording control

part 117 similarly to the above. At the same time, the data providing server 101 generates header data D4 based on that recording control data D3, and records this in the portable dedicated terminal 102 with the content data D1...

...0227] Furthermore, if payment by cash or a prepaid card at the shop is specified by the rental reservation request data D2 sent from the request terminal 103, the data providing server 101 generates recording control data D3 by adding the agency ID to the rental reservation request data D2 storing information representing that the payment by cash or a prepaid card at the shop has completed instead of the customer's account

number by the accounting part 116, and sends...

...0229] In this connection, in the data providing server 101, a slot for

a prepaid card is provided on the accounting part 116. When the payment by a prepaid card at the shop is specified, an amount of charge to the customer according to the rental term of the content data D1 is computed by the accounting part 116. And if the customer inserts his/her prepaid card into the slot when the customer came to receive the portable dedicated terminal 102, the rental charges is settled by the prepaid card...

...that, the above data providing server 101 also can be used in the case

where the customer came to the shop and requested to rent content data D1. In this case, a clerk in the shop inputs rental information having the same contents as the rental reservation request data D2 described above with reference to FIG. 6 via an operational information

input part. The above entered rental information is transmitted to the accounting part 116. Thereby, the content data D1 is recorded in the portable dedicated terminal 102 similarly to the aforementioned rental reservation by the request terminal 103...

...0232] If rental reservation acceptance data is sent from the data providing server 101 via the Internet 105, the request terminal 103 receives this by a receiving part 124, and transmits this from a discriminating part 125 to a display part 126. Thus, completion of the

acceptance of the rental reservation of the desired content data requested by the customer is notified to the customer, with the dedicated terminal ID of the portable dedicated terminal 102 that will be rented with the above content data D1...

...0233] In this connection, in the request terminal 103, an accounting part 127 having a slot for a prepaid card is provided. If payment by a prepaid card by the request terminal 103 is specified by the customer via the operational information input part 120, the operational information discriminating...

...0234] The request terminal 103 receives account data transmitted by sending the rental reservation request data D2 to the data providing

server 101 by the receiving part 124, discriminates this by the discriminating part 125, and transmits this to the accounting part 127...

...0235] If a customer's prepaid card is inserted into the slot of the accounting part 127, the request terminal 103 settles the rental charges to the customer by the prepaid card based on the account data by the accounting part 127. And then, the request terminal 103 generates payment-by-prepaid completion data, and sends this from the sending part 123 to the data providing server 101 via the Internet 105...

...reservation processing procedure by the data providing server 101 and the request terminal 103 in the data providing system 100 will be described except for payment for rental charges (that is, accounting). As shown in FIG. 7A, the request terminal 103 enters routine

RT1 from the start step and proceeds to step SP1...0239] In step SP12,

the data providing server 101 generates recording control data D3 by the accounting part 116 by means of the rental reservation request data D2, and proceeds to the next step SP13...

...0242] In step SP4, the request terminal 103 transmits that rental reservation acceptance data to the display part 126 to display it

thereon, and notifies the customer of completion of the acceptance of the

rental reservation of the content data D1 with the dedicated terminal ID of the portable dedicated terminal 102 that will be rented with the above content data D1, and it proceeds to the next step SP5 to finish the processing in the above request terminal 103...

...customer can make a reservation for the rental of the content data D1 without waiting in front of the portable dedicated terminal 102 while the

content data D1 is being recorded in the portable dedicated terminal 102...

...0248] In this connection, that when in using the distribution of content data D1 on the Internet 105, it has been already described. However, also knowledge of the Internet 105 is necessary. Therefore, sometimes, a person who does not have knowledge of

the Internet 105 is hard to easily receive the distribution of the content data D1...

...0252] In the aforementioned second embodiment, it has dealt with the case where content data D1 that the customer requested to rent is

recorded in the portable dedicated terminal 102 dedicated to the agency.

However, this invention is not only limited to this but also content data D1 that the customer requested to rent or purchase may be recorded in a portable recording and reproducing device such as a portable telephone...

...by the receiving part 115 is provided. If the receiving part 115 receives rental reservation request data D2 from the request terminal 103

on the Internet 105, the data providing server 151 transmits this from the receiving data judging part 155 to an accounting part 156...

...0260] If that the content data D1 has been stored in the content database 153 is confirmed by the accounting part 156, the data providing server 151 successively transmits recording control data D3 to a recording control part 157 from the accounting part 156...

...and 9, if that the content data D1 requested by the customer has not been stored in the content database 153 is confirmed by the accounting part 156, the data providing server 151 generates recording control data D3 by using the rental reservation request data D2 similarly to the accounting part 116 of the data providing server 101 (FIG. 5) according to the second embodiment described above with reference to FIGS. 5 and 6 (it also executes accounting) by the accounting part 156. Although, the data providing server 151 transmits the recording control data D3 from the sending part 118 to the content server 152 via the Internet 105 as content obtaining request data.

[...

...0263] As a result, if the requested content data D1 is sent from the content server 152 via the Internet 105 with the content obtaining request data, the data providing server 151 receives them by the receiving part 115, takes them in the receiving data judging part 155, and transmits them to the recording control part 157...

...0265] In this manner, even if the rental of the content data D1 that has not been stored in the content database 153 is requested, the data providing server 151 can rent the content data D1 to the customer by obtaining this from the content server 152...

...0269] If content information including a content ID to newly store the content data D1 is entered to the content database 153 via the operational information input part 119, the data providing server 151 transmits this from the operational information judging part 158 to a request data generating part 159 to generate content request data according to the content information, and sends this from the sending part 118 to the

content server 152 via the Internet 105...

...0270] If the desired content data D1 and its additional information are sent from the content server 152, the data providing server 151 receives this by the receiving part 115, and transmits them from the receiving data judging part 155 to the recording control part 157 to store them in the content database 153 by the above recording control part 157...

...0272] On the other hand, if the content obtaining request data is sent from the data providing server 151 via the Internet 105, the content server 152 (FIG. 8) receives this by a receiving part 160, extracts the content ID from that content obtaining request data by a content ID extracting part 161, and transmits this to a content retrieving part 162 as well as transmitting the above content obtaining request data to a sending data generating part 164...

...0273] The content server 152 retrieves data in the content database 154 based on that content ID by the content retrieval part 162, reads the corresponding content data D1, and transmits this to the sending data generating part 164. At the same time, the content server 152 adds the content obtaining request data to that content data D1 by the above sending data generating part 164, and sends them from a sending part

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to the data providing server 151 via the Internet 105...

...0274] Furthermore, if the content request data is sent from the data providing server via the Internet 105, the content server 152 receives this by the receiving part 160, extracts the content ID from that content request data by the content ID extracting part 161, and transmits this to the content retrieval part 162...

...0277] Here, rental reservation processing procedures by the data providing server 151, the request terminal 103 and the content server 152 in the data providing system 150 will be described except for the payment of rental charges (i.e. accounting). As shown in FIG. 10A, first, the request terminal 103 enters routine RT1 from the start step, and executes similar processing to the case described...

...the data providing server 151 enters routine RT3 from the start step and sequentially executes the processing at steps SP11 and SP12. And then, the data providing server 151 proceeds to step SP21 to retrieve a data table in the content database 153 by the accounting part 156 and judging whether or not it is necessary to obtain the content data D1 that the customer requested to rent from the content server 152...

...0279] Obtaining an affirmative result in this step SP21 means that the content data D1 has not been stored in the content database 153 in the data providing server 151. At this time, the

data providing server 151 proceeds to step SP22 to send the recording control data D3 generated by the accounting part 156 as content obtaining request data from the sending part 118 to the content server 152 via the Internet 105, and it proceeds to step SP23...

...0284] In step SP24, the data providing server 151 transmits the received content data D1 and content obtaining request data from the receiving data judging part 155 to the recording control part 157, and generates rental reservation acceptance data by the receiving data judging part 155, and sends this from the sending part 118 to the request terminal 103 via the Internet 105. Successively, the data providing server 151 sequentially executes the processing at steps SP14

and SP15. And then, the data providing server 151 proceeds to...

...0285] In this connection, obtaining a negative result in the aforementioned step SP21 means that the content data D1 that the customer requested to rent has been stored in the content database 153 in the data providing server 151. At this time, the data providing server 151 proceeds to step SP24 to generate rental reservation acceptance data by the recording control part 157 that received the recording control data D3 from the accounting part 156, and sends this from the sending part 118 to the request terminal 103 via the Internet 105, and then, the data providing server 151 proceeds to step SP14...

...0287] In this data providing system 150, if the data providing server 151 receives the rental reservation request data D2 from the request terminal 103 by the customer's operation, the data providing server 151 judges whether or not the content data D1 that the customer requested to rent has been stored in the content database 153 in the data providing server 151. If the content data D1 has not been stored, the data providing server 151 obtains the content data D1 from the content server 152, and records this in the portable dedicated terminal 102 that will be rented to the customer...

...in the content database 153, the data providing server 151 obtains the

content data D1 from the content server 152 and rents this to the customer. Thereby, in addition to the effects obtained by the aforementioned second embodiment, the scale of the content database 153 in the data providing server 151 can be largely reduced.

And

even if the scale of the...

...in the case where the customer contracts with an advertiser/company are

as FIG. 14: "The advertiser/company pays a part of customer's communication charges.", "The advertiser/company discounts the purchase of merchandise etc. by the customer.", "The customer can use the point of Internet mileage that the customer got in payment for the purchase of merchandise etc.", "The advertiser/company gives a present to

the customer according to the point of the Internet mileage that  
the...

...by the customer information updating part 215, and sends this from  
the  
sending part 214 to the customer's portable dedicated terminal 202 via  
the Internet 204 for storing...

...0308] At this time, as shown in FIG. 13B, the intermediate  
server 201 adds the customer ID to the customer  
information by the customer information updating part 215, and  
stores them in the customer database 210 as customer  
registration information to register the customer. In this manner,  
the intermediate server 201 accepts a registration request from a  
customer at any time, and executes the customer  
registration processing...

...it adds this to the contents of the content specifying data as  
additional customer information, and updates them. Then, the  
intermediate  
server 201 sends the content specifying data from the sending part  
214 to the agency via the Internet 204...

...0311] In this manner, the intermediate server 201 relays content  
data from the portable dedicated terminal 202 to the agency every time  
when the customer uses the agency on the Internet 204, so that as  
shown in FIG. 15, the intermediate server 201 adds accessed genre  
information representing the genre of the content data that the...

...0323] If the advertiser and/or company introducing information is  
generated, the matching part 216 temporarily stores the  
customer registration information and the customer's taste  
information that were used to generate that, in the advertiser/company  
information extracting part 223...

...0325] Thereby, the intermediate server 201 shown in FIG. 11 can  
introduce the advertiser and/or company that can provide distribution  
data useful for the customer, to the customer who requested  
the introduction of advertisers and/or companies. At the same time,  
the  
intermediate server 201 can introduce the customer who  
needs their providing of distribution data to the  
advertisers/companies

...

...server 201 receives this by the receiving part 212, forbids the  
matching  
part 216 to generate customer introducing information, and awaits  
sending  
of approval-by-customer data from the portable dedicated  
terminal 202 of the above customer again...

...0327] Note that, when the intermediate server 201 introduces the  
customer to an advertiser and/or a company, it collects  
charges for the introduction of the customer from the  
advertiser and/or company...

...contract should be concluded with the customer introduced from the intermediate server 201, by referring to the contract terms and the using

state of the Internet or the like, by the customer selecting part 237 based on the customer introducing data...

...0340] At this time, the advertiser/company server 203 notifies the sending control part 231 of that to contract with the customer was decided, by the customer selecting part 237. Thereby, the advertiser/company server 203 properly selects and reads distribution data matching with the customer's taste from among various distribution data previously stored in the distribution information database 236, and sends thus read distribution data from the sending part 232 to the customer's portable dedicated terminal 202 via the Internet 204, by the sending control part 231...

...0341] In this manner, the advertiser/company server 203 can properly provide distribution data matching with the customer's taste to the contracting customer...

...registration request data by a request data generating part 241, and sends this from a sending part 242 to the intermediate server 201 via the Internet 204...

...0344] The portable dedicated terminal 202 receives customer registering screen data sent from the intermediate server 201 by a receiving part 243 via the Internet 204, and transmits this to a reproducing part 244 composed of a display control part, a display part, a speaker, etc. Thereby, a customer registering screen based on...

...0352] As a result, if advertiser/company introducing data is sent from the intermediate server 201 via the Internet 204, the portable dedicated terminal 202 receives this by the receiving part 243, and transmits this to the reproducing part 244. An advertiser and/or company to be introduced from the intermediate server 201 is shown to the customer by...

...0354] As a result, if contract conclusion data is sent from the intermediate server 201 via the Internet 204 by that the advertiser or the company contracted with the customer, the portable dedicated terminal 202 receives this by the receiving part 243, and transmits this to the reproducing part 244. Thereby, the conclusion of the contract with the advertiser/company is notified to the customer...

...0355] If the distribution data is sent from the advertiser/company server 203 being under contraction with the customer,

the portable dedicated terminal 202 receives this by the receiving...

...company is entered by the above customer by the operating part 240, the

portable dedicated terminal 202 generates selection-of-advertiser-and/or-company disapproval data representing that selection disapproval information by the request data generating part 241, and sends this from the sending part 242 to the intermediate server 201 via the Internet 204...

...0360] Thereby, in the advertiser/company server 202, when the content data rented from the agency is erased from the recording medium for agency 247 on the expiration of the rental term, that the data

such as the customer ID and the distribution data obtained for the customer from the servers are erroneously erased with the above content data, can be surely prevented...If the portable dedicated terminal 202 receives the advertiser and/or company introducing data by

the receiving part 243, in step SP132, the portable dedicated terminal 202 transmits this to the reproducing part 244 to show the customer the advertiser and/or the company that was introduced from the intermediate server 201. Then, the portable dedicated terminal 202 returns to step SP127 and repeats the processing of steps SP127-SP128-SP129-SP130-SP131-SP132 again. The advertiser and/or company introducing processing...

...or not to contract with the customer by the customer selecting part 237,

by referring to the contract terms and the using state of the Internet 204 based on the customer introducing data...

...0405] In step SP186, the advertiser/company server 203 properly reads

distribution data matching with the taste of the contracting customer from the distribution information database 236 by the sending control part 231, and sends this from the sending part 232 to the customer's portable dedicated terminal 202 via the Internet 204. Then, the advertiser/company server 203 proceeds to step SP184 to finish the processing in the advertiser/company server 203...

...server 201 proceeds to step SP175 to send the contract inconclusion data

from the sending part 214 to the portable dedicated terminal 202 via the Internet 204 to notify the customer of that a contract with the advertiser/company did not conclude. Then, the intermediate server 201 proceeds to step SP176...

...0417] According to the above configuration, in this data providing system 200, an advertiser or a company that provides distribution data to the customer on the Internet 204 is registered by that the intermediate server 201 obtains advertiser/company information from the

advertiser/company server 203 of the advertiser/company and stores...

...0425] In this data providing system 200, if the portable dedicated

terminal 202 obtains distribution data from the server, it records the distribution data in the recording medium for customer 246 different from the recording medium for agency 247 by discriminating this from the content data recorded in the recording medium for agency 247. Thereby, when the...

...data is sent to the advertiser/company server 203, it can be remarkably

reduced that the advertiser and/or company abandons the contract with the

customer owing to the contract term. Thus, a probability that the contract is concluded between the customer and the advertiser and/or company can be improved, and the request of the customer that wants to contract with the advertiser and/or company can be further

accurately taken up...

...0433] In this case, the intermediate server 261 registers the customer

who uses the Internet 204 by means of the portable dedicated terminal 262 by storing the customer registration information in a customer database 265 similarly to the intermediate server 201 described

above with reference to FIG. 11, and also registers an advertiser/company

that can provide distribution data to the customer on the Internet 204 by means of the advertiser/company server 203 by storing the advertiser/company registration information in the advertiser

and company database 211...

...information read from the advertiser and company database 211, and sends

this from the sending part 214 to the portable dedicated terminal 262 via

the Internet 204 as advertiser/company introducing data...

...0439] In this manner, the intermediate server 261 introduces an advertiser and/or company that can provide distribution data matching with customer's taste to the customer who permitted the release

of the customer information to the advertiser and/or the company...

...0442] As a result, if the customer information input screen data is sent from the intermediate server 261 via the Internet 204, the portable dedicated terminal 262 receives this by a receiving part 271, and transmits this to the reproducing part 244. Thus, a customer information input screen based on the customer information input screen

data is displayed...0449] In step SP202, the intermediate server 261 reads customer information input screen data from the customer database 265 based on the received customer approval data by the customer information updating part 267, and sends this from the sending part 214 to the portable dedicated terminal 262, and then proceeds to step SP203...

...0454] In step SP205, the intermediate server 261 generates advertiser and/or company introducing data based on the

advertiser/company registration information read from the advertiser and company database 211, and sends this from the sending part

214 to the portable dedicated terminal 262 to introduce the advertiser and/or the company to the customer. Then, the intermediate server 261 proceeds to step SP206 to finish the processing in the intermediate server 261...

...of the release of the customer information to the advertiser and/or company, or even at the time when the customer does not use the Internet 204 frequently because the customer just began to use the portable dedicated terminal 262, the intermediate server 261 can accurately grasp the customer's interest, and can introduce the advertiser and/or the company that can provide distribution data desired by the customer to the customer...

...However, this invention is not only limited to this but also, provided

that it is a device by which the customer can connect to the Internet 204 such as a personal computer, a portable telephone, a PDA, the intermediate server 261 can be used by means of various data obtaining devices other than that. Thereby, further more customers can use the introduction of an advertiser and/or a company by the intermediate server 261, and the system...

...0474] The data providing server 301 can be connected to the portable dedicated terminal 303 that was purchased/rented to the customer on the Internet. If the data providing server 301 obtains request data for requesting the obtaining of content data (by purchase or rental) is sent from the portable...

...customer enters confirmation information for confirming that the content

selecting screen is customized as he/she requested by the operating part

341, the portable dedicated terminal 303 generates confirmation data by the request data generating part 344, and sends this from the sending part 345 to the data providing server 301 to store the screen customizing information representing the contents of customizing

that the customer requested in the data providing server 301...

...0504] After the screen customizing data was stored in the data providing server 301, the portable dedicated terminal 303 sends content obtaining request data to the data providing server 301. The portable dedicated terminal 303 receives the customized screen data from the data providing server 301 by the receiving part 346, and transmits this to the reproducing part 343...0521] Here, in the selection confirming screen 355, the title of the content data selected by the customer, customer's name, customer ID, password, etc. are displayed. The portable dedicated terminal 303 moves the cursor according to the customer's operation of the operating part 341, so that

the rental term or purchase of content data can be entered. If the rental term or purchase is entered, charges for the

rental/purchase of the content data are displayed responding to that...

...0534] In step SP212, the portable dedicated terminal 303 generates obtaining request data by the request data generating part 344

and sends this from the sending part 345 to the data providing server 301, and proceeds to step SP213...

...0536] In step SP223, the data providing server 301 awaits that obtaining request data is sent from the portable dedicated terminal 303. If the data providing server 301 receives the obtaining request data by the receiving part 312, the data providing server 301 proceeds to step SP224 to read the content selecting screen data from the content database 311 by the retrieving part 315, and sends this from the sending part 314 to the portable dedicated terminal 303, and then proceeds to step SP225...

...0537] At this time, in step SP213, the portable dedicated terminal 303 awaits that content selecting screen data is sent from the data providing server 301. If the portable dedicated terminal 303 receives the content selecting screen data by the receiving part 346, it transmits the content selecting screen data to the reproducing part 343 to display the picture of exterior of shop 350 being the content selecting screen, and then proceeds to step SP214...

...0538] In step SP214, the portable dedicated terminal 303 starts a subroutine described later. If specifying information is entered on each picture forming the content selecting screen by the customer's operation of the operating part 341, the portable dedicated terminal 303 proceeds to step SP215...

...0539] In step SP215, the portable dedicated terminal 303 generates content specifying data by the request data generating part 344, and sends this from the sending part 345 to the data providing server 301, and then...

...in step SP225, the data providing server 301 starts a subroutine described later. The data providing server 301 properly reads each picture data forming the content selecting screen data and commercial data from the content database 311 by the retrieving part 315, and sends this from the sending part 314 to the portable dedicated terminal 303. Then, if the data...

...0549] In step SP235, the portable dedicated terminal 303 transmits the received picture data to the reproducing part 343 to newly display a picture based on the picture data instead of the picture of the content selecting screen being displayed at present...

...of the above steps SP231-SP232-SP233-SP234-SP235-SP236-SP237-SP238-SP239. Thereby, the portable dedicated terminal 303 can make the customer select desired

content data by displaying each picture of the content selecting screen while properly switching the display while mixing the advertisement of a content by the reproducing part 343...

...step SP236, if the portable dedicated terminal 303 confirms that the confirmation button 368 was selectively specified on the selection confirming screen 355 of the content selecting screen, it pulls out of this subroutine and proceeds to step SP215 of the content providing processing procedure in the portable dedicated terminal 303 described above with reference to FIG. 32A...

...data from the data providing server 301. If the portable dedicated terminal 303 receives the customizing registering screen data by the receiving part 346, it transmits this to the reproducing part 343 to display a customizing registering screen based on the customizing registering screen data, and proceeds to step SP264...content data D21 that the customer wants to rent, equivalent exchange information representing whether or not equivalent exchange had performed, rental term, and method of payment for rental charge is included

...

Dialog eLink: Order File History

7/K,3/6 (Item 2 from file: 654)

DIALOG(R)File 654: US PAT.FULL.

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Utility

CERTIFICATE OF CORRECTION

E/ Systems and methods for secure transaction management and electronic rights protection

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Division	Abandoned			US 95388107	19950213

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Description of the Drawings:

...FIG. 53C shows an example of a BILLING method...

Description of the Invention:

...the same key is used for encryption and decryption could be used in

place of DES encryption and decryption. The preferred embodiment can support a plurality of decryption/encryption techniques using multiple dedicated circuits within encrypt/decrypt engine 522 and/or the

processing arrangement within SPU 500...

...An optional compression/decompression engine 546 may be provided within

an SPU 500 to, for example, compress and/or decompress content stored in, or released from, VDE objects 300.

Compression/decompression

engine 546 may implement one or more compression algorithms using hardware circuitry to improve the...

...on microprocessor 520, or outside SPU 500. Decompression is important in

the release of data such as video and audio that is usually compressed before distribution and whose decompression speed is important. In some cases, information that is useful for usage monitoring purposes (such as record separators or other delimiters) is...eases network management and support...

...processing based on independently deliverable secure components

...

...Procedure Call" ("RPC") internal processing request structure.

Cooperating processors may request interprocess services using a RPC mechanism, which is minimally time dependent and can be distributed over cooperating processors on a network of hosts. The multi-processor architecture provided by ROS 602 is easily extensible to

support any number of host...

...ROS 602 provides distribution of control information, including for example the distribution of control structures required to permit "agents" to operate in remote environments. Thus, ROS 602 provides facilities...

...controlling one or more aspects of usage) may prepare audits for a distributor and format requests associated with the usage control for processing by a distributor. Processes at either end of a reciprocal control may be further controlled by other processes (e.g.,

a

distributor may be limited by a budget for the number of usage control mechanisms they may produce). Reciprocal control mechanisms may

extend over many sites and many levels (e.g., a creator to a distributor to a user) and may take any relationship into account (e.g., creator/distributor, distributor/user, user/user, user/creator, user/creator/distributor, etc.) Reciprocal control mechanisms have many uses in VDE 100 in representing relationships and agreements in a distributed environment...

...scalable. Many portions of ROS 602 control structures and kernel(s) are

easily portable to various host platforms without recompilation. Any

control structure may be distributed (or redistributed) if a granting authority permits this type of activity. The executable references within ROS 602 are portable within a target platform. Different instances of ROS...

...or more "method cores," method parameters and other associated data structures that ROS 602 may collect and assemble together to perform a task such as billing or metering. Different users may have different combinations of elements, and some of the elements may be customizable by users with appropriate authorization. This increases...

...validates its various components. ROS 602 correlates control and data structure components to prevent unauthorized use of elements. These features permit ROS 602 to independently distribute elements, and also allows integration of VDE functions 604 with non-secure "other" OS

functions 606...

...format such as method options to an end-user. An end-user may then customize the actual control information used within guidelines provided

by a distributor or content creator. Modification and update of existing control structures is preferably also a controllable

event subject to auditing and control information...

...be created by "adding on" to existing operating systems. This involves

hooking VDE "add ons" to the host operating system at the device driver

and network interface levels. Alternatively, ROS 602 may comprise a wholly new operating system that integrates both VDE functions and other operating system functions...as keyboard 612, display 614, other devices such as a "mouse" pointing device and speech recognizer 613, modem 618, printer 622, and an adapter for network 672. Kernel 680 may also be responsible for initially loading the remainder of ROS 602,

and may manage the various ROS tasks (and associated underlying...

...User Notification/Exception Interface 686 in the preferred embodiment (which may be considered part of API 682 or another application coupled to the API) provides "pop up" windows/displays on display 614. This allows ROS 602 to communicate directly with a user without having...

...object 300. This application may reference structures provided by other

parties. Such references might, for example, take the form of a control

path that uses content creator structures to meter user activities; and structures created/owned by a financial provider to handle financial parts of a content distribution transaction (e.g., defining a credit budget that must be present in a control structure to establish creditworthiness, audit processes which must be performed by the licensee, etc.). As another example, a distributor may give one user more favorable pricing than another user by delivering different data elements defining pricing to

different users. This attribute of supporting multiple party securely, independently deliverable control information is fundamental to enabling electronic commerce, that is, defining of a content and/or appliance control information set that represents the requirements

of a collection of independent parties such as content creators, other content providers, financial service providers, and/or users

...

...ROS 602 generates component assemblies 690 in a secure manner. As shown

graphically in FIGS. 11I and 11J, the different elements comprising a component assembly 690 may be "interlocking" in the sense that they can only go together in ways that are intended by the...

...element intended by the VDE content distributor, then the person could

establish a price of zero instead of the price the content distributor intended to charge. Similarly, if the element establishes an electronic credit card, then an ability to substitute a different element

could have disastrous consequences in terms of allowing a person to charge her usage to someone else's (or a non-existent) credit card. These are merely a few simple examples demonstrating the importance

of ROS 602...

...The PERC 808 may reference one or more method "cores" 1000'. A method core 1000' may define a basic "method" 1000 (e.g., "control," "billing," "metering," etc...

...a lower cost SPU 500. It also provides an extremely high level of configurability. In fact, ROS 602 will accommodate an almost unlimited diversity of content types, content provider objectives, transaction types and client requirements. In addition, the ability to dynamically assemble independently deliverable components at execution time based on particular objects and users provides a high degree of flexibility, and facilitates or enables a distributed database, processing, and execution environment...API Service 742

(this

API service is connected to user API 682 in the preferred embodiment...

...system services provided by ROS 602 are invoked by using an RPC service

interface (RSI). This RPC service interface provides a generic, standardized interface for different services systems and subsystems provided by ROS 602...

...forwarding to a HPE. In one preferred embodiment, SPE 503 and BPE 655 may perform essentially the same services so that RSIs 736a, 738a are different instances of the same RSI. Once a service request has been received by SPE 503 (or HPE 655), the SPE (or HPE) typically dispatches the...

...what state an application is in. User notification services manager 740

and interface 686 provides ROS 602 with a mechanism to communicate

directly with a user, instead of or in addition to passing a return call through API 682 and an application 608. This is similar, for

example, to the ability of the Windows operating system to display a user message in a "dialog box" that displays "on top of" a running application irrespective of the state of the application...

...The User Notification 686 block in the preferred embodiment may be implemented as application code. The implementation of interface 740a

is preferably built over notification service manager...

...as part of API service manager 742. Notification services manager 740 in

the preferred embodiment provides notification support to dispatch specific notifications to an appropriate user process via the appropriate API return, or by another path. This mechanism permits notifications to be routed to any authorized process-not just back

...

Name Services Manager 752 supports three subservices: user name services,

host name services, and services name services. User name services provides mapping and lookup between user name and user ID numbers, and may also support other aspects of user-based resource and information security. Host name services provides mapping and lookup between the names (and other information, such as for example

address, communications connection...

...Part of the object definition task 1220 in the preferred embodiment may

be to analyze the content or other information to be placed within an object. Object definition user interface 774a may issue calls to object switch 734 to analyze "content" or other information that is to be included within the object to be created in order to define

or

organize the content into "atomic elements..."

...Communications subsystem 776, as discussed above, may be a conventional

communications service that provides a network manager 780 and a mail gateway manager 782. Mail filters 784 may be provided to automatically route objects 300 and other VDE information to/from the outside world. Communications subsystem 776 may support a real time content feed 684 from a cable, satellite or other telecommunications link...

...supporting execution of only one task at a time. For example, a typical

set top implementation of SPU 500 may perform simple metering, budgeting

and billing using subsets of VDE methods combined into single "aggregate" load modules to permit the various methods to execute in a single tasking environment. However, an...

...a number of different tasks/methods such as a "channel" task, a "control" task, an "event" task, a "meter" task, a "budget" task, and a "

billing" task. Depending on the size of SPU RAM 532, "swap blocks" may be swapped out of RAM and stored temporarily on secondary storage  
652 until...

? b npl

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\*File 674: File 674 is closed (no longer updates).

File 696:DIALOG Telecom. Newsletters 1995-2008/Mar 14  
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? s (PD < 20031217) and (content or document) (15N) (distribut? or redistribut? or deliver? or transfer? or transmit?) (40N) (network or Internet) and (bill? or pay or payment or charg?)

Completed processing all files

82827173 PD<20031217  
5020850 CONTENT  
2684785 DOCUMENT  
14300392 DISTRIBUT?  
851575 REDISTRIBUT?  
12349148 DELIVER?  
4269594 TRANSFER?  
1194797 TRANSMIT?  
11539348 NETWORK  
10759851 INTERNET  
714632 (CONTENT OR DOCUMENT) (15N) (((DISTRIBUT? OR  
REDISTRIBUT?)  
OR DELIVER?) OR TRANSFER?) OR TRANSMIT?) (40N) (NETWORK  
OR  
INTERNET)  
18493465 BILL?  
8088668 PAY  
2829896 PAYMENT  
9052034 CHARG?  
S1 174579 (PD < 20031217) AND (CONTENT OR DOCUMENT) (15N)  
(DISTRIBUT? OR REDISTRIBUT? OR DELIVER? OR TRANSFER?  
OR  
TRANSMIT?) (40N) (NETWORK OR INTERNET) AND (BILL? OR  
PAY  
OR PAYMENT OR CHARG?)

? s s1 and (terminal or client or user or customer or subscriber or distributor or retailer or retailor) (10W) (replicat? or duplciat? or reproduc? or copy or deliver?

or distribut? or redistribut? or transfer?) (10W) (other or another or different or second or plurality) (3W) (terminal or client or user or customer or subscriber)

Completed processing all files

174579	S1
1154347	TERMINAL
3525898	CLIENT
4443248	USER
8713175	CUSTOMER
742074	SUBSCRIBER
1423820	DISTRIBUTOR
1507948	RETAILER
107	RETAILOR
492085	REPLICAT?
7	DUPLCIAT?
952393	REPRODUC?
2099766	COPY
12349148	DELIVER?
14300392	DISTRIBUT?
851575	REDISTRIBUT?
4269594	TRANSFER?
46758018	OTHER
14504091	ANOTHER
9292658	DIFFERENT
15333447	SECOND
27817	PLURALITY
1154347	TERMINAL
3525898	CLIENT
4443248	USER
8713175	CUSTOMER
742074	SUBSCRIBER
279882	(((((TERMINAL OR CLIENT) OR USER) OR CUSTOMER) OR SUBSCRIBER) OR DISTRIBUTOR) OR RETAILER) OR RETAILOR) .....
S2 15600	S1 AND (TERMINAL OR CLIENT OR USER OR CUSTOMER OR SUBSCRIBER OR DISTRIBUTOR OR RETAILER OR RETAILOR)
(10W)	(REPLICAT? OR DUPLCIAT? OR REPRODUC? OR COPY OR DELIVER? OR DISTRIBUT? OR REDISTRIBUT? OR TRANSFER?) (10W)
(OTHER	OR ANOTHER OR DIFFERENT OR SECOND OR PLURALITY) (3W) (TERMINAL OR CLIENT OR USER OR CUSTOMER OR SUBSCRIBER)

? s2 and server (10N) (stor? or memory or maintain?) (15N) (accounting or billing or payment or charg?) (10N) (balance or information or data)

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15600	S2
2371534	SERVER
16789264	STOR?
1944593	MEMORY
7382128	MAINTAIN?
6166638	ACCOUNTING

759488 BILLING  
2829896 PAYMENT  
9052034 CHARG?  
4463538 BALANCE  
35091043 INFORMATION  
17079793 DATA  
4953 SERVER(10N) ((STOR? OR MEMORY) OR  
MAINTAIN?) (15N) (((ACCOUNTING OR BILLING) OR PAYMENT)  
OR  
S3 4 CHARG?) (10N) ((BALANCE OR INFORMATION) OR DATA)  
(15N) S2 AND SERVER (10N) (STOR? OR MEMORY OR MAINTAIN?)  
(ACCOUNTING OR BILLING OR PAYMENT OR CHARG?) (10N)  
(BALANCE OR INFORMATION OR DATA)

? s s3 and server (10N) (stor? or memory or billing or account or accounting) (15N)  
(access or accessible or read) (10N) (terminal or client or user or customer or  
subscriber)

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? t s3/ti,ab/all

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A universal client? (corporate intranets) (includes list of pros and cons, glossary of intranet terms and related article on the intranet strategies of major industry players) (The Web Within) (Technology Information)

**Abstract:** An increasing number of organizations are discovering that the same technologies utilized by the Internet can be used to set up powerful collaboration and information systems, also known as intranets. Today's intranets are generally made up of internal corporate Web servers that are made available to employees via private dial-up access or across a LAN. While groupware systems can be cumbersome and expensive to manage and install, intranets are relatively inexpensive. Most Web browser can be obtained for free. Since employees will be able to use familiar browsers, training and support costs are cut. One hidden cost in creating an intranet is the need to run TCP/IP. However, TCP/IP gateways are available that may cut down on the number of problems associated with adopting TCP/IP. Although intranet technologies have the potential to replace popular groupware applications, traditional groupware packages offer features that complement intranets.

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